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INSECT PEST SURVEY BULLETIN

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<u>Trimerotropis pistrinaria</u> Sauss.	9(Sup.)	306, 311, 314, 322
<u>Trimerotropis sparsa</u> Thos.	9(Sup.)	314, 322
<u>Trimerotropis vinculata</u> Scudd.	4	95
<u>Tritogenaphis ambrosiae</u> Thos.	1	28
<u>Tuberculatus ulmifolii</u> Monell.....	8	246, 269

<u>Tyloderma fragariae</u> Riley.....	4	115
<u>Tynacantha cinctipes</u> Stahl.....	5	166
<u>Typhlocyba pomaria</u> McAtee.....	4	108
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	9	287
<u>Xanthopastis timais</u> Cram.....	4	122
<u>Xerophloea viridis</u> Fab.	5	168
<u>Xyleborus affinis</u> Eich.....	1	31
<u>Zelus armillatus</u> Lep. & Sev.	5	167
<u>Zophodia grossulariae</u> Riley.....	5	144

We wish to urge our collaborators to use the common names accepted by the American Association of Economic Entomologists. They are indicated by the letters a.n.o.: (americano nomina officinale). These should be considered as official by all American economic entomologists. A complete list of accepted names was published in the Journal of Economic Entomology for December 1931, pages 1273-1310.

Abbot's sawfly -----	Neodiprion abbotii Leach
Alder flea beetle a.n.o. -----	Haltica bimarginata Say
Alfalfa caterpillar a.n.o. -----	Eurymus eurytheme Bdv.
Alfalfa webworm -----	Loxostege commixtalis Walk.
Alfalfa weevil a.n.o. -----	Hypera postica Gyll.
Apple aphid a.n.o. -----	Aphis pomi DeG.
Apple curculio a.n.o. -----	Tachypterellus quadrigibbus Say.
Apple fruit miner a.n.o. -----	Marmara pomonella Busck
Apple leaf-curling midge -----	Dasyneura mali Kieff.
Apple maggot a.n.o. -----	Rhagoletis pomonella Walsh
Apple twig borer a.n.o. -----	Amphicerus bicaudatus Say
Arborvitae aphid -----	Lachnus thujaefilina Del G.
Argentine ant a.n.o. -----	Iridomyrmex humilis Mayr
Arizona ash tingid -----	Leptopypha minor McAtee
Army cutworm a.n.o. -----	Chorizagrotis auxiliaris Grote
Armyworm a.n.o. -----	Cirphis unipuncta Haw.
Ash borer a.n.o. -----	Podosesia fraxini Luger
Asiatic beetle a.n.o. -----	Anomala orientalis Waterh.
Asiatic garden beetle -----	Autoserica castanea Arrow
Asparagus beetle a.n.o. -----	Crioceris asparagi L.
Azalea leaf miner -----	Gracilaria azaleae Brants
Azalca scale -----	Eriococcus azaleae Comst.
Bagworm a.n.o. -----	Thyridopteryx lephemeraeformis Haw.
Balsam woolly aphid -----	Dreyfusia picea Ratz.
Banded cucumber beetle a.n.o. ----	Diabrotica balteata Lec.
Bean aphid a.n.o. -----	Aphis rumicis L.
Bean leaf beetle a.n.o. -----	Cerotoma trifurcata Forst.
Bean leaf roller a.n.o. -----	Goniurus proteus L.
Bean looper -----	Autographa egea Guen.
Bean thrips a.n.o. -----	Heliothrips fasciatus Perg.
Bean weevil a.n.o. -----	Acanthoscelides obtectus Say
Bedbug a.n.o. -----	Cimex lectularius L.
Beech blight aphid a.n.o. -----	Prociphilus imbricator Fitch
Beech scale a.n.o. -----	Cryptococcus fagi Baer.
Beet armyworm a.n.o. -----	Laphygma exigua Hbn.
Beet leafhopper a.n.o. -----	Eutettix tenellus Baker
Beet webworm a.n.o. -----	Loxostege sticticalis L.
Birch case bearer -----	Coleophora salmani Heinr.
Birch leaf miner -----	Fenusa pumila Klug.
Birch skeletonizer a.n.o. -----	Bucculatrix canadensisella Chamb.
Black blowfly -----	Phormia regina Meig.
Black cherry aphid a.n.o. -----	Myzus cerasi Fab.
Black citrus aphid a.n.o. -----	Toxoptera aurantiae Boyer
Black field cricket -----	Gryllus assimilis Fab.

Black grain-stem sawfly -----	Trachelus tabidus Fab.
Black pecan aphid a.n.o. -----	Melanocallis caryaefoliae Davis
Black scale a.n.o. -----	Saissetia oleae Bern.
Black turpentine beetle a.n.o. ---	Dendroctonus terebrans Oliv.
Black vine weevil a.n.o. -----	Brachyrhinus sulcatus Fab.
Black widow spider -----	Latrodectus mactans Fab.
Blueberry spanworm -----	Itame inceptaria Walk.
Boxelder bug a.n.o. -----	Leptocoris trivittatus Say
Boxelder leaf roller a.n.o. -----	Gracilaria negundella Chamb.
Boxelder psyllid -----	Psylla negundinis Mally
Boxwood leaf miner a.n.o. -----	Monarthropalpus buxi Labou
Bristly rose slug a.n.o. -----	Cladius isomerus Nort.
Bronze birch borer a.n.o. -----	Agrilus anxius Gory
Brown-tail moth a.n.o. -----	Nygmia phaeorrhoea Don.
Bruce's measuring worm. See	
Bruce's spanworm.	
Bruce's spanworm a.n.o. -----	Rachela bruceata Hulst
Bulb mite a.n.o. -----	Rhizoglyphus hyacinthi Bdv.
Bumble flower beetle a.n.o. -----	Euphoria inda L.
Cabbage aphid a.n.o. -----	Brevicoryne brassicae L.
Cabbage looper a.n.o. -----	Autographa brassicae Riley
Cabbage maggot a.n.o. -----	Hylemyia brassicae Bouche
Cabbage webworm a.n.o. -----	Hellula undalis Fab.
California oak moth a.n.o. -----	Phryganidia californica Pack.
California red scale a.n.o. -----	Chrysomphalus aurantii Mask.
California tent caterpillar a.n.o. ---	Malacosoma californicus Pack.
Camellia scale -----	Lepidosaphes camelliae Hoke.
Caragana beetle. See	
Nuttall's blister beetle.	
Cardin's whitefly -----	Aleurodicus cardini Back
Carpenter worm a.n.o. -----	Prionoxystus robiniae Peck
Carrot beetle a.n.o. -----	Ligyrus gibbosus DeG.
Carrot weevil -----	Listronotus latiusculus Boh.
Catalpa sphinx a.n.o. -----	Ceratonia catalpae Bdv.
Cedar bark beetle -----	Phloeosinus dentatus Say
Chaff scale a.n.o. -----	Parlatoria pergandei Comst.
Changa a.n.o. -----	Scapteriscus vicinus Scudd.
Cherry fruit fly a.n.o. -----	Rhagoletis cingulata Loew
Cherry leaf beetle a.n.o. -----	Galerucella cavicollis Lec.
Chicken mite a.n.o. -----	Dermanyssus gallinae DeG.
Chinch bug a.n.o. -----	Blissus leucopterus Say
Chinese mantis a.n.o. -----	Tenodera sinensis Sauss.
Chrysanthemum lacebug -----	Corythucha marmorata Uhl.
Citricola scale a.n.o. -----	Coccus pseudomagnoliarum Kuw.
Citrus blackfly a.n.o. -----	Aleurocanthus woglumi Ashby
Citrus red spider -----	Paratetranychus citri McG.
Citrus rust mite a.n.o. -----	Phyllocoptes oleivorus Ashm.
Citrus whitefly a.n.o. -----	Dialeurodes citri How. & Riley
Clover leaf weevil a.n.o. -----	Hypera punctata Fab.
Clover mite a.n.o. -----	Bryobia praetiosa Koch
Cluster fly a.n.o. -----	Pollenia rudis Fab.
Codling moth a.n.o. -----	Carpocapsa pomonella L.

Colorado potato beetle a.n.o.-----	Leptinotarsa decemlineata Say
Columbine borer a.n.o. -----	Papaipema purpurifascia G. & R.
Common pine sawyer -----	Monochamus notatus Drury
Common red spider a.n.o. -----	Tetranychus telarius L.
Corn ear worm a.n.o. -----	Heliothis obsoleta Fab.
Corn flea beetle a.n.o. -----	Chaetocnema pulicaria Melsh.
Corn lantern fly -----	Peregrinis maidis Ashm.
Corn root aphid a.n.o. -----	Anuraphis maidi-radiciis Forbes
Corn root worm a.n.o. -----	Diabrotica longicornis Say
Cotton leaf worm a.n.o. -----	Alabama argillacea Hbn.
Cottony-cushion scale a.n.o. -----	Icerya purchasi Mask.
Cottony maple scale a.n.o. -----	Pulvinaria vitis Rathv.
Coulee cricket a.n.o. -----	Peranabrus scabricollis Thom.
Cowpea aphid a.n.o. -----	Aphis medicaginis Koch
Crapemyrtle aphid a.n.o. -----	Myzocallis kahawaluokalani Kirk.
Cross-striped cabbage worm a.n.o. --	Evergestis rimosalis Guen.
Curled rose sawfly a.n.o. -----	Emphytus cinctipes Nort.
Currant aphid a.n.o. -----	Myzus ribis L.
Currant fruit fly a.n.o. -----	Epochra canadensis Loew
Cyclamen mite a.n.o. -----	Tarsonemus pallidus Bks.
Deodar weevil a.n.o. -----	Pissodes deodarae Hopk.
Desert June beetle -----	Ochrosidia villosa Burm.
Destructor scale -----	Aspidiotus destructor Say
Diamond-back moth a.n.o. -----	Plutella maculipennis Curtis
Dog flea a.n.o. -----	Ctenocephalides canis Curtis
Dried fruit beetle a.n.o. -----	Carpophilus hemipterus L.
Eastern tent caterpillar a.n.o. ----	Malacosoma americana Fab.
Eggplant flea beetle a.n.o. -----	Epitrix fuscula Crotch
Eight-spotted forester a.n.o. -----	Alypia octomaculata Fab.
Elm case bearer a.n.o. -----	Coleophora limosipennella Dup.
Elm leaf beetle a.n.o. -----	Galerucella xanthomelaena Schr.
Elm leaf miner a.n.o. -----	Kaliosysphinga ulmi Sund.
Elm sawfly a.n.o. -----	Cimbex americana Leach
Elm scurfy scale a.n.o. -----	Chionaspis americana Johns.
English grain aphid a.n.o. -----	Macrosiphum granarium Kby.
Euonymus scale a.n.o. -----	Chionaspis euonymi Comst.
European corn borer a.n.o. -----	Pyrausta nubilalis Hbn.
European earwig a.n.o. -----	Forficula auricularia L.
European elm scale a.n.o. -----	Gossyparia spuria Mod.
European pine shoot moth a.n.o.-----	Rhyacionia buoliana Schiff.
European red mite a.n.o. -----	Paratetranychus pilosus C. & F.
European spruce sawfly -----	Diprion polytomum Htg.
European willow beetle -----	Plagioder a versicolora Laich.
Eye-spotted budmoth a.n.o. -----	Spilonota ocellana Schiff.
Fall armyworm a.n.o. -----	Laphygma frugiperda S. & A.
Fall canker worm a.n.o. -----	Alsophila pometaria Harr.
Fall webworm a.n.o. -----	Hyphantria cunea Drury
False chinch bug a.n.o. -----	Nysius ericae Schill.
Flat-headed apple tree borer a.n.o.-	Chrysobothris femorata Oliv.
Florida red scale a.n.o. -----	Chrysomphalus aonidium L.
Flower thrips a.n.o. -----	Frankliniella tritici Fitch

Forest tent caterpillar a.n.o. -----	Malacosoma disstria Hbn.
Four-lined plant bug a.n.o. -----	Poecilopsus lineatus Fab.
Fowl tick a.n.o. -----	Argas miniatus Koch
Fruit tree leaf beetle -----	Syneta albida Lec.
Fruit tree leaf roller a.n.o. -----	Cacoecia argyrospila Walk.
Fuller's rose beetle a.n.o. -----	Asynychus godmani Crotch
Garden centipede a.n.o. -----	Scutigera immaculata Newp.
Garden flea hopper a.n.o. -----	Malticus citri Ashm.
Garden slug -----	Agriolimax agrestis L.
Garden springtail a.n.o. -----	Sminthurus hortensis Fitch
Garden webworm a.n.o. -----	Loxostege similalis Guen.
Giant aphid -----	Longistigma caryae Harr.
Gladiolus thrips a.n.o. -----	Taeniothrips gladioli M. & S.
Gloomy scale a.n.o. -----	Chrysomphalus tenebricosus Comst.
Gooseberry fruit worm a.n.o. -----	Zophodia grossulariae Riley
Grape cane girdler -----	Ampelogypter ater Lec.
Grape colaspis a.n.o. -----	Colaspis brunnea Fab.
Grape leaf folder a.n.o. -----	Desmia funeralis Hbn.
Grape leafhopper a.n.o. -----	Erythroneura comes Say
Grape phylloxera a.n.o. -----	Phylloxera vitifoliae Fitch
Grape plume moth a.n.o. -----	Oxyptilus periscelidactylus Fitch
Gray-banded leaf roller a.n.o. -----	Eulia mariana Fern.
Gray blister beetle a.n.o. -----	Epicauta cinerea Forst.
Green bug a.n.o. -----	Toxoptera graminum Rond.
Green citrus aphid -----	Aphis spiraeicola Patch
Green clover worm a.n.o. -----	Plathypena scabra Fab.
Green fruit worm a.n.o. -----	Graptolitha antennata Walk.
Greenhouse leaf tyer a.n.o. -----	Phlyctaenia rubigalis Guen.
Greenhouse thrips a.n.o. -----	Heliothrips haemorrhoidalis Bouche
Greenhouse whitefly a.n.o. -----	Trialeurodes vaporariorum Westw.
Green June beetle a.n.o. -----	Cotinis nitida L.
Green peach aphid a.n.o. -----	Myzus persicae Sulz.
Green-striped maple worm a.n.o. -----	Anisota rubicunda Fab.
Ground mealybug a.n.o. -----	Rhizoecus terrestris Newst.
Gulf coast tick a.n.o. -----	Amblyomma maculatum Koch
Gypsy moth a.n.o. -----	Porthetria dispar L.
Harlequin bug a.n.o. -----	Murgantia histrionica Hahn
Hemlock looper. See Hemlock spanworm.	
Hemlock spanworm a.n.o. -----	Ellopia fiscellaria Guen.
Hessian fly a.n.o. -----	Phytophaga destructor Say
Hickory bark beetle a.n.o. -----	Scolytus quadrispinosus Say
Holly leaf miner a.n.o. -----	Phytomyza ilicis Curt.
Hop flea beetle a.n.o. -----	Psylliodes punctulata Melsh.
Horn fly a.n.o. -----	Haematobia irritans L.
Horse botfly a.n.o. -----	Gastrophilus intestinalis DeG.
House cricket a.n.o. -----	Gryllus domesticus L.
Imbricated snout beetle a.n.o. -----	Epicaerus imbricatus Say
Imported cabbage worm a.n.o. -----	Ascia rapae L.
Imported currant worm a.n.o. -----	Pteronidea ribesii Scop.
Indian-meal moth a.n.o. -----	Plodia interpunctella Hbn.

Iris borer a.n.o. -----	Macronoctua onusta Grote
Italian pear scale a.n.o. -----	Diaspis piricola Del Guer.
Japanese beetle a.n.o. -----	Popillia japonica Newm.
Japanese maple scale -----	Leucaspis japonica Ckll.
Juniper scale -----	Diaspis carueli Targ.
Juniper webworm -----	Dichomeris marginellus Fab.
Koo-tsabe -----	Ephydra hiars Say
Larch case bearer a.n.o. -----	Coleophora laricella Hbn.
Larger elm leaf beetle -----	Monocesta coryli Say
Latania scale -----	Aspidiotus lataniae Sign.
Leaf crumpler a.n.o. -----	Mineola indiginella Zell.
Leaf-footed bug a.n.o. -----	Leptoglossus phyllopus L.
Lesser corn stalk borer a.n.o. ----	Elasmopalpus lignosellus Zell.
Lesser peach borer a.n.o. -----	Aegeria pictipes G. & R.
Lilac borer a.n.o. -----	Podosesia syringae Harr.
Lilac leaf miner a.n.o. -----	Gracilaria syringella Fab.
Lima bean vine borer -----	Monoptilota pergratialis Hulst
Locust borer a.n.o. -----	Cyllene robiniae Forst.
Locust leaf miner -----	Chalepus dorsalis Thunb.
Magnolia scale a.n.o. -----	Neolecanium cornuparvum Thro
Maple bladder gall -----	Phyllocoptes quadripes Shim.
Maple leaf stem borer -----	Priophorus acericaulis MacG.
Maple nepticula -----	Nepticula sericopeza Zell.
Mealy flata -----	Ormenis pruinosa Say
Mealy plum aphid a.n.o. -----	Hyalopterus arundinis Fab.
Melon aphid a.n.o. -----	Aphis gossypii Glov.
Mexican bean beetle a.n.o. -----	Epilachna corrupta Muls.
Mexican mealybug -----	Phenacoccus gossypii Towns. & Ckll.
Mint flea beetle -----	Longitarsus waterhousei Kutsch.
Monarch butterfly a.n.o. -----	Danaus menippe Hbn.
Mormon cricket a.n.o. -----	Anabrus simplex Hald.
Mountain pine beetle a.n.o. -----	Dendroctonus monticolae Hopk.
Mourning-cloak butterfly a.n.o. ---	Hamadryas antiopa L.
Mulberry whitefly a.n.o. -----	Tetraleurodes mori Quaint.
Narcissus bulb fly a.n.o. -----	Merodon equestris Fab.
Navel orange worm a.n.o. -----	Myelois venipars Dyar
Nevada buck moth -----	Hemileuca nevadensis Stretch.
Northern mole cricket a.n.o. -----	Gryllotalpa hexadactyla Perty
Norway maple aphid a.n.o. -----	Periphyllus lyropictus Kess.
Nuttall's blister beetle a.n.o. ---	Lytta nuttalli Say
Oak pill gall -----	Cincticornia pilulae Walsh
Oak twig pruner -----	Hypermallus villosus Fab.
Oblique-banded leaf roller a.n.o.--	Cacoecia rosaceana Harr.
Obscure scale a.n.o. -----	Chrysomphalus obscurus Comst.
Onion maggot a.n.o. -----	Hylemyia antiqua Meig.
Onion thrips a.n.o. -----	Thrips tabaci Lind.

Orange tortrix a.n.o. -----	<i>Tortrix citrana</i> Fern.
Oriental fruit moth a.n.o. -----	<i>Grapholitha molesta</i> Busck
Oyster-shell scale a.n.o. -----	<i>Lepidosaphes ulmi</i> L.
Pale western cutworm a.n.o. -----	<i>Porosagrotis orthogonia</i> Morr.
Palmetto scale -----	<i>Comstockiella sabalis</i> Comst.
Palmetto weevil -----	<i>Rhyncophorus cruentatus</i> Fab.
Palm leaf skeletonizer -----	<i>Homaledra sabelella</i> Chamb.
Papaya fruit fly a.n.o. -----	<i>Toxotrypana curvicauda</i> Gerst.
Pea aphid a.n.o. -----	<i>Illinoia pisi</i> Kalt.
Peach borer a.n.o. -----	<i>Aegeria exitiosa</i> Say
Pea moth a.n.o. -----	<i>Laspeyresia nigricana</i> Steph.
Pear borer -----	<i>Synanthedon pyri</i> Harr.
Pear psylla a.n.o. -----	<i>Psyllia pyricola</i> Foerst.
Pear slug a.n.o. -----	<i>Eriocampoides limacina</i> Retz.
Pea weevil a.n.o. -----	<i>Bruchus pisorum</i> L.
Pecan weevil a.n.o. -----	<i>Curculio caryae</i> Horn
Pepper weevil a.n.o. -----	<i>Anthonomus eugenii</i> Cano
Periodical cicada a.n.o. -----	<i>Magicicada septendecim</i> L.
Phlox bug -----	<i>Lopidea media</i> Say
Pickle worm a.n.o. -----	<i>Diaphania nitidalis</i> Stoll
Pigeon fly a.n.o. -----	<i>Pseudolynchia maura</i> Bigot
Pine bark aphid a.n.o. -----	<i>Pineus strobi</i> Htg.
Pine leaf miner -----	<i>Paralechia pinifoliella</i> Chamb.
Pine needle scale a.n.o. -----	<i>Chionaspis pinifoliae</i> Fitch
Pine tube moth a.n.o. -----	<i>Eulia pinatubana</i> Kearf.
Pink boll worm a.n.o. -----	<i>Pectinophora gossypiella</i> Saund.
Pistol case bearer a.n.o. -----	<i>Coleophora malivorella</i> Riley
Plains false wireworm a.n.o. -----	<i>Eleodes opaca</i> Say
Plum curculio a.n.o. -----	<i>Conotrachelus nenuphar</i> Hbst.
Polka-dot wasp moth -----	<i>Syntomeida epilais</i> Walk.
Poplar borer a.n.o. -----	<i>Saperda calcarata</i> Say
Potato aphid a.n.o. -----	<i>Illinoia solanifolii</i> Ashm.
Potato leafhopper a.n.o. -----	<i>Empoasca fabae</i> Harr.
Potato stalk borer a.n.o. -----	<i>Trichobaris trinotata</i> Say
Potato tuber worm a.n.o. -----	<i>Gnorimoschema operculella</i> Zell.
Purple scale a.n.o. -----	<i>Lepidosaphes beckii</i> Newm.
Puss caterpillar a.n.o. -----	<i>Megalopyge opercularis</i> S. & A.
Putnam's scale a.n.o. -----	<i>Aspidiotus ancylus</i> Putn.
Pyriform scale a.n.o. -----	<i>Protopulvinaria pyriformis</i> Ckll.
Raspberry cane borer a.n.o. -----	<i>Oberea bimaculata</i> Oliv.
Raspberry sawfly a.n.o. -----	<i>Monophadnoides rubi</i> Harr.
Rat flea a.n.o. -----	<i>Ceratophyllus fasciatus</i> Bosc.
Red-banded thrips a.n.o. -----	<i>Selenothrips rubrocinctus</i> Giard.
Red-headed pine sawfly a.n.o. -----	<i>Neodiprion lecontei</i> Fitch
Red-humped oak caterpillar -----	<i>Symmerista albifrons</i> S. & A.
Rhododendron lacebug a.n.o. -----	<i>Stephanitis rhododendri</i> How.
Rhododendron whitefly -----	<i>Dialeurodes chittendeni</i> Laing.
Rice stink bug -----	<i>Solubea pugnax</i> Fab.
Rose chafer a.n.o. -----	<i>Macroductylus subspinosus</i> Fab.
Rose scale a.n.o. -----	<i>Aulacaspis rosae</i> Bouche
Rosy apple aphid a.n.o. -----	<i>Anuraphis roseus</i> Baker

Round-headed apple tree borer -----	<i>Saperda candida</i> Fab.
Rusty plum aphid a.n.o. -----	<i>Hysteroneura setariae</i> Thos.
Salmon fly -----	<i>Taeniopteryx pacifica</i> Bks.
Salt-marsh caterpillar a.n.o. -----	<i>Estigmene acraea</i> Drury
San José scale a.n.o. -----	<i>Aspidiotus perniciosus</i> Comst.
Satin moth a.n.o. -----	<i>Stilpnotia salicis</i> L.
Say's stink bug a.n.o. -----	<i>Chlorochroa sayi</i> Stahl
Scotch pine lecanium -----	<i>Toumeyella numismaticum</i> P. & McD.
Screw worm a.n.o. -----	<i>Cochliomyia macellaria</i> Fab.
Seed corn maggot a.n.o. -----	<i>Hylemyia cilicrura</i> Rond.
Sheep botfly a.n.o. -----	<i>Oestrus ovis</i> L.
Shot-hole borer a.n.o. -----	<i>Scolytus rugulosus</i> Ratz.
Small green rose aphid -----	<i>Myzaphia rosarum</i> Walk.
Soft scale a.n.o. -----	<i>Coccus hesperidum</i> L.
Southern corn root worm a.n.o. -----	<i>Diabrotica duodecimpunctata</i> Fab.
Southern corn stalk borer a.n.o. -----	<i>Diatraea crambidoides</i> Grote
Southern green stink bug a.n.o. -----	<i>Nezara viridula</i> L.
Southern pine beetle a.n.o. -----	<i>Dendroctonus frontalis</i> Zimm.
Spinach carrion beetle -----	<i>Silpha bituberosa</i> Lec.
Spinach flea beetle -----	<i>Disonychia xanthomelaena</i> Dalm.
Spinach leaf miner a.n.o. -----	<i>Pegomyia hyoscyami</i> Panz.
Spiny rose gall -----	<i>Rhodites bicolor</i> Harr.
Spotted asparagus beetle a.n.o. -----	<i>Crioceris duodecimpunctata</i> L.
Spotted cucumber beetle a.n.o. -----	<i>Diabrotica duodecimpunctata</i> Fab.
Spring canker worm a.n.o. -----	<i>Paleacrita vernata</i> Peck
Spruce bud scale -----	<i>Physokermes piceae</i> Schr.
Spruce budworm a.n.o. -----	<i>Harmologa fumiferana</i> Clem.
Spruce gall aphid -----	<i>Chermes abietis</i> L.
Spruce mite -----	<i>Paratetranychus uniunguis</i> Jacobi
Squash borer a.n.o. -----	<i>Melittia satyriniformis</i> Hbn.
Squash bug a.n.o. -----	<i>Anasa tristis</i> DeG.
Stable fly a.n.o. -----	<i>Stomoxys calcitrans</i> L.
Stalk borer a.n.o. -----	<i>Papaipema nebris nitela</i> Guen.
Strawberry crown borer a.n.o. -----	<i>Tyloderma fragariae</i> Riley
Strawberry crown moth a.n.o. -----	<i>Aegeria rutilans</i> Hy. Edw.
Strawberry leaf roller a.n.o. -----	<i>Ancylis comptana</i> Froel.
Strawberry root aphid a.n.o. -----	<i>Aphis forbesi</i> Weed
Strawberry root weevil a.n.o. -----	<i>Brachyrhinus ovatus</i> L.
Strawberry weevil a.n.o. -----	<i>Anthonomus signatus</i> Say
Striped cucumber beetle a.n.o. -----	<i>Diabrotica vittata</i> Fab.
Striped flea beetle a.n.o. -----	<i>Phyllotreta vittata</i> Fab.
Suckfly a.n.o. -----	<i>Dicyphus minimus</i> Uhl.
Sugar beet root maggot -----	<i>Tetanops aldrichi</i> Hendel
Sugarcane beetle a.n.o. -----	<i>Euetheola rugiceps</i> Lec.
Sugarcane borer a.n.o. -----	<i>Diatraea saccharalis</i> Fab.
Sugarcane rootstock weevil -----	<i>Anacetrinus subnudus</i> Buchanan
Sugar-maple borer a.n.o. -----	<i>Glycobius speciosus</i> Say
Sumac beetle -----	<i>Blepharida rhois</i> Forst.
Tarnished plant bug a.n.o. -----	<i>Lygus pratensis</i> L.
Tea scale -----	<i>Fiorinia theae</i> Green
Terrapin scale a.n.o. -----	<i>Lecanium nigrofasciatum</i> Perg.
Three-lined fig borer -----	<i>Ptychodes trilineatus</i> L.

Thistle aphid a.n.o. -----	Anuraphis cardui L.
Tobacco budworm a.n.o. -----	Heliothis virescens Fab.
Tobacco flea beetle a.n.o. -----	Epitrix parvula Fab.
Tobacco thrips a.n.o. -----	Frankliniella fusca Hinds
Tobacco worm a.n.o. -----	Phlegethontius quinquemaculata Haw.
Tomato pinworm -----	Gnorimoschema lycopersicella Busck
Tomato psyllid -----	Paratrioza cockerelli Sulc.
Tomato worm a.n.o. -----	Phlegethontius sexta Johan.
Tree-hole mosquito -----	Aedes varipalpus Coq.
Tropical rat mite a.n.o. -----	Liponyssus bacoti Hirst.
Tulip tree scale a.n.o. -----	Toumeyella liriodendri Gmel.
Turnip aphid a.n.o. -----	Rhopalosiphum pseudobrassicae Davis
Two-lined chestnut borer a.n.o. ---	Agrilus bilineatus Web.
Two-marked tree hopper -----	Enchenopa binotata Say
Variegated cutworm a.n.o. -----	Lycophotia margaritosa saucia Hbn.
Vegetable weevil a.n.o. -----	Listroderes obliquus Gyll.
Velvetbean caterpillar a.n.o. -----	Anticarsia gemmatilis Hbn.
Vetch bruchid -----	Bruchus brachialis Fahraeus
Walkingstick a.n.o. -----	Diapheromera femorata Say
Walnut aphid a.n.o. -----	Chromaphis juglandicola Kalt.
Walnut caterpillar a.n.o. -----	Datana integerrima G. & R.
Walnut husk fly a.n.o. -----	Rhagoletis juglandis Cress.
Western apple curculio -----	Tachypterellus quadrigibbus magnus List.
Western grape root worm a.n.o. ----	Adoxus obscurus L.
Western spotted cucumber beetle a.n.o.	Diabrotica soror Lec.
Western striped cucumber beetle a.n.o.	Diabrotica trivittata Mann.
Western wheat stem maggot -----	Hylemyia cerealis Gill.
Western willow tingid -----	Corythucha salicata Gibson
Wheat head armyworm a.n.o. -----	Neleucania albilinea Hbn.
Wheat stem maggot a.n.o. -----	Meromyza americana Fitch
Wheat stem sawfly a.n.o. -----	Cephus cinctus Nort.
White apple leafhopper a.n.o. -----	Typhlocyba pomaria McAtee
White-lined sphinx a.n.o. -----	Sphinx lineata Fab.
White-marked tussock moth a.n.o. --	Hemerocampa leucostigma S.&A.
White pine aphid -----	Lachnus strobi Fitch
White-pine weevil a.n.o. -----	Pissodes strobi Peck
Willow flea weevil -----	Orchestes rufipes Lec.
Winter tick a.n.o. -----	Dermacentor albipictus Pack.
Woodbine vein gall -----	Dasyneura parthenocissi Stebb.
Wooly alder aphid a.n.o. -----	Prociphilus tessellatus Fitch
Wooly apple aphid a.n.o. -----	Eriosoma lanigerum Hausm.
Wooly elm aphid a.n.o. -----	Eriosoma americanum Riley
Yellow-striped armyworm a.n.o. ----	Prodenia ornithogalli Guen.
Zebra caterpillar a.n.o. -----	Mamestra picta Harr.

INSECT PEST SURVEY BULLETIN

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THE MORE IMPORTANT RECORDS FOR JANUARY AND FEBRUARY, 1934

The month of February was marked by unprecedentedly cold weather in the East Central, New England, Middle Atlantic, and South Atlantic States, with abnormally warm weather in the West and Northwest.

Cutworm activity started during the latter half of February in the South Atlantic States. Eggs were observed in the Norfolk trucking section of Virginia, January 15. In Montana the army cutworm has been found actively feeding in winter wheat.

Reports from Nebraska indicate that the Hessian fly is quite generally infesting the wheat, infestations varying from less than 1 to over 4 puparia per stem.

The chinch bug situation has not materially changed since last fall. Infestations are generally heavy in the East Central and West Central States.

The green bug appeared during the third week of February in Oklahoma.

Winter survival of the sugarcane borer is reported high in Louisiana.

In the East Central and Western States winter mortality of the codling moth has been very low; in the Pacific Northwest it is reported as negligible. On the other hand, New York State reports very high mortality from winter killing.

The San Jose scale is reported as more prevalent in Illinois, Georgia, Idaho, and Mississippi, as compared with last year.

The mealy plum aphid is reported as more abundant in the prune orchards of the San Joaquin Valley of California than at any time during the past four years.

Dry weather during the early part of the winter is said to account for an unusually heavy infestation of the citrus rust mite in Florida.

The seed corn maggot is quite generally troublesome in Mississippi and parts of Texas.

The tomato pin worm has been found in a greenhouse near new Castle, in Lawrence County, Pa., in the extreme western part of the State.

The percentage of survival of the Mexican bean beetle is reported to have dropped materially in Ohio.

A heavy outbreak of the green peach aphid on spinach and cruciferous crops is reported from the Norfolk trucking section of Virginia.

The brown-tail moth has suffered rather high winter mortality in the northern part of New England.

A serious infestation of the southern pine beetle in Virginia has been materially reduced by very high mortality this winter.

GENERAL FEEDERS

GRASSHOPPERS (Acrididae)

Michigan. R. Hutson (February 20): Egg survival is great in regions affected last year.

Montana. A. L. Strand (February 19): Owing to the very mild winter over a large part of Montana, grasshoppers of the *Hippiscus* group are especially active and large numbers of them are being sent in for identification. In spite of the relatively warm weather during the last two months, none of our economic species have hatched.

Arizona. C. D. Lebert (February 19): After one of the worst infestations ever known in this State (1933) one would expect to find egg masses with ease this spring. However, the reverse is true in the Salt River Valley. To date, very few eggs have been found. The eggs of Melanoplus differentialis Thos. are more prevalent. Those of M. mexicanus Sauss. are very scarce. Indications are that the poison campaign was very successful, or that there was a late second generation which did not oviposit, or that a general migration occurred. (I believe that a supplementary second generation occurred, and therefore few eggs were deposited.)

CUTWORMS (Noctuidae)

Virginia. H. G. Walker (February 26): An egg mass of about 450 cutworm eggs was found on a spinach leaf in the field at Norfolk on January 15.

Montana. A. L. Strand. (February 19): The army cutworm, Chorizagrotis auxiliaris Grote, has been received during the past month from several localities where it is active mostly in fields of winter wheat.

Utah. G. F. Knowlton (February 19): Cutworms are moderately abundant in northern Utah.

Arizona. C. D. Lebert (February 19): Several species of cutworms are moderately abundant in the Salt River Valley.

California. M. L. Jones (December 1933): Cutworms and other noctuids are reported as generally distributed in small numbers on celery.

MONARCH BUTTERFLY (Danaus menippe Fab.)

Florida. H. T. Fernald (February 14): I have seen faded specimens of the monarch butterfly at intervals during this entire winter; quite a difference from the winter of 1932-33, when I saw none.

WHITE GRUBS (Phyllophaga spp.)

Iowa. C. J. Drake (February 19): White grubs are extremely abundant; thousands of acres of grass and other crops were destroyed in 1933.

Missouri. L. Haseman (February 20): Recent letters report serious damage to sod during the fall but local diggings at Columbia do not show many worms. In north-central Missouri we may have trouble.

Arizona. C. D. Lebert (February 19): White grubs are very numerous in soil of farming areas.

CEREAL AND FORAGE - CROP INSECTS

WHEAT

HESSIAN FLY (Phytophaga destructor Say)

Missouri. L. Haseman (February 20): The results of scouting for the Hessian fly last fall indicate that we will probably not have any serious trouble this year.

Nebraska. M. H. Swenk (January 1 to February 15): The new wheat crop shows a varying infestation, judging from samples sent in by correspondents during the period here covered, the variation running from 42 percent to 100 percent of the stems infested and the infestation varying from 0.6 puparium per stem in a Hall County field to 4 puparia per stem in a Nuckolls County field.

CHINCH BUG (Blissus leucopterus Say)

Illinois. W. P. Flint (February 19): Weather conditions have been ideal for chinch bug hibernation, with a very high survival in the central part of the State. No extensive counts have been made as yet.

Iowa. C. J. Drake (February 19): The chinch bug is very common throughout the State.

Iowa. H. E. Jaques (February 24): Southeastern Iowa is thickly sprinkled with chinch bugs. They are more abundant than they have been for many years, and our very open winter has made it easy for them.

Missouri. L. Haseman (February 20): Much winter burning has been done, but the mild winter has favored the pest. Unless there is heavy spring and summer rainfall, the chinch bug situation will be serious. Clump-grass was burned February 17, with slow back fire; one clump examined February 20, showed 54 live bugs and 4 dead remains; within 25 feet of the burned clump an unburned one of like size showed 244 live and 19 dead. In addition to an apparently large kill by burning, these figures indicate approximately 8 percent winter mortality. If the difference in count of the two clumps is due to burning, it indicates a greater percent of kill by burning than we usually estimate.

Nebraska. M. H. Swenk (January 1 to February 15): Among the cereal pests, the chinch bug was the subject of the most frequent inquiries. During the second week in February a considerable amount of winter burning was resorted to in southeastern Nebraska, where the insect is very abundant.

GREEN BUG (Toxoptera graminum Rond.)

Oklahoma. C. F. Stiles (February 24): Green bugs have made their appearance in Kingfisher and Alfalfa Counties. Parasites have increased rapidly in the infested fields, and unless weather conditions are unfavorable for the development of parasites we do not expect severe damage.

CORN

LESSER CORN STALK BORER (Elasmopalpus lignosellus Zell.)

Alabama. J. M. Robinson (February 21): Larvae of the lesser corn stalk borer were moderately abundant in cornstalks at Hartford, January 8.

SOUTHERN CORN STALK BORER (Diatraea crambidoides Grote)

Alabama. J. M. Robinson (February 21): Larvae were moderately abundant in cornstalks at Hartford, January 8.

ALFALFA

ALFALFA WEEVIL (Hypera postica Gyll.)

Colorado. G. M. List (February 20): The alfalfa weevil is scarce to moderately abundant in infested counties.

California. A. E. Michelbacher (February 19): Owing to the mild weather this insect has remained more or less active during the entire winter. In the Tracy area, by the 8th of December, both the larvae and adults were hard to collect. On the 12th of February the highest weevil population encountered was in a field near Vernalis, where an average of 8 larvae and 7 adults were collected per 100 sweeps. In all the other fields examined the count per 100 sweeps never exceeded one or two individuals, and in some none were collected. Weevils were, however, found from one end of the district to the other.

In the region about Pleasanton the larvae could be collected throughout the entire winter in fields where there was a slight growth of alfalfa. They were never taken in large numbers, and the counts were usually less than 3 to 100 sweeps. The highest number taken per 100 sweeps on February 12 was 12 larvae and 5 adults.

In the most heavily infested fields in the Miles territory the weevil could be collected with ease at any time during the winter, 10 to 15 larvae usually being taken to 100 sweeps. As early as the first of the year one count was made where 50 larvae were collected to 100 sweeps. By the middle of January it was not uncommon to collect 25 larvae to 100 sweeps, and during the early part of February counts of over 100 were made. In one field, on the 9th of February, an average of 247 larvae and 18 adults were found to 100 sweeps. The count in this field is the highest that has come to our attention, and a survey of the district at that time showed the counts in most fields to be less than 50 larvae to 100 sweeps.

Observations of the weevil activity in field cages at Pleasanton and Niles showed that the weevil oviposited rather freely in alfalfa stems during the entire winter at Niles, and to a lesser extent at Pleasanton. As things look now it is expected that the alfalfa weevil will do little or no damage to the alfalfa crop this season.

ALFALFA CATERPILLAR (Eurymus eurytheme Bdv.)

Arizona. C. D. Lebert (February 19): An adult was noticed February 16.

California. A. E. Michelbacher (February 19): During the past month a few larvae of the alfalfa butterfly were collected.

PEA APHID (Illinoia pisi Kalt.)

Oregon. D. C. Mote (February 23): The pea aphid was found on peas near Barlow, February 13.

L. P. Rockwood (March 1): This aphid had attained a considerable population in some early fall seeded vetch and pea fields by early February. Meteorological conditions of the fall and winter of 1933-34 parallel rather closely those of 1917-18 which preceded the worst outbreak in the Pacific Northwest within recent years. It is feared that there may be fewer predators than usual as field crop aphids were unusually scarce in the season of 1933. We know that there are fewer coccinellid beetles than usual in their winter cache on Bald Peak in the Chehalem Mountains. The only natural enemies observed as yet in the fields are spiders and the fungous disease Empusa aphidis Hoffman.

California. A. E. Michelbacher (February 19): The pea aphid was collected in the alfalfa fields during the past month; it is becoming quite abundant in some fields at the present time.

GRASS

CRANE FLIES (Tipula spp.)

Kentucky. W. A. Price (February 23): Crane fly larvae appeared in masses in an orchard that was heavily mulched, at Farmers.

Louisiana. W. E. Hinds (February 20): Crane flies (undetermined) have been moderately abundant for the past few weeks at Baton Rouge.

SUGARCANE

SUGARCANE BORER (Diatraea saccharalis Fab.)

Louisiana. W. E. Hinds (February 20): In the examinations made in the vicinity of Baton Rouge, the survival of the sugarcane borer is high.

SUGARCANE ROOTSTOCK WEEVIL (Anacentrinus subnudus Buchanan)

Louisiana. W. E. Hinds (February 20): All stages except the egg have been found all winter at Baton Rouge and Plaquemine. Eggs may have been present but were never found.

F R U I T I N S E C T S

APPLE

CODLING MOTH (Carpocapsa pomonella L.)

New York. P. J. Parrott (February 23): In some sections of western New York large numbers of hibernating larvae have been killed by low temperatures.

Illinois. W. P. Flint (February 19): Over the southern half of Illinois winter weather has been unseasonably mild to date, and codling moth larvae have suffered very little winter injury. Larvae kept alive outdoors at Urbana show a higher percentage alive at this time than for several years.

Missouri. L. Haseman (February 20): Recent checks at Columbia show only 7.6 percent mortality of larvae in our breeding cages.

Colorado. G. M. List (February 20): The codling moth is very abundant, and winter mortality is very low.

Idaho. R. W. Haegeler (February 21): Winter mortality is negligible in southwestern Idaho. There is an enormous carry-over of worms from 1933 and a heavy infestation is expected for this year.

C. Wakeland (February 20): We have had no winter to date, consequently a high survival is expected. Temperature has not reached zero in most parts of Idaho. Perennials have blossomed all winter. Mortality of the codling moth should be the lowest in the last 12 years.

California. M. L. Jones (February 7): The codling moth was reported as causing slight damage locally on pears in Yolo County during December 1933.

F R U I T T R E E L E A F R O L L E R (Cacoecia argyrospila Walk.)

Colorado. G. M. List (February 20): Fruit tree leaf rollers are scarce.

Utah. G. F. Knowlton (February 19): Eggs are abundant in Utah County and moderately abundant in northern Utah.

A P H I D S (Aphidae)

New Jersey. R. C. Burdette, B. F. Driggers, and C. C. Hamilton (February 26): Eggs of green aphids (Aphis pomi DeG.) and rosy aphids (Anuraphis roseus Baker) are moderately abundant.

Kentucky. W. A. Price (February 23): Aphid eggs are very abundant in orchards generally over the State.

Idaho. C. Wakeland (February 20): Orchard aphids are reported by fruit growers as being already hatched.

Utah. G. F. Knowlton (February 19): Fruit aphid eggs are moderately abundant in northern Utah.

SAN JOSE SCALE (Aspidiotus perniciosus Comst.)

Georgia. O. I. Snapp (February 21): The San Jose scale is now very much more abundant on peach trees than usual at Fort Valley. The percentage of live scales at the present time is a little lower than usual, which no doubt is due to low temperatures. A minimum of 14.4° F. was recorded on January 30. There have been three cold spells during the winter. Of 4,100 scales examined on February 17 and 19, 3,301 were found to be alive. C. H. Alden (February 21): Some crawlers have been observed this winter at Cornelia. There are none at this date, probably on account of the cold spell.

Kentucky. W. A. Price (February 23): There has been a marked decrease in the numbers of the San Jose scale over last year.

Michigan. R. Hutson (February 23): The San Jose scale is moderately abundant; reported from as far north as Shelby and Hart.

Wisconsin. E. L. Chambers (February 19): The small percentage of the San Jose scale that survived the winter of 1932-33 developed rapidly during the summer and, aided by a long growing season, established quite severe infestations on many trees and shrubs in the several counties in Wisconsin where this pest now exists.

Mississippi. C. Lyle and assistants (February): The San Jose scale is very abundant in Lee, Hinds, Bolivar, and Washington Counties. Some trees have been killed. Crawlers were noticed until the cold wave of the week of December 25.

Idaho. R. W. Haegeler (February 21): Winter mortality is negligible in southwestern Idaho. The scale showed increase during 1933.

APPLE MAGGOT (Rhagoletis pomonella Walsh)

Nebraska. M. H. Swenk (February 15): During the last week in January we received from Burt County several specimens of apples showing heavy injury by the apple maggot.

PEACH

LESSER PEACH BORER (Aegeria pictipes G. & R.)

Mississippi. J. Milton (February 19): The lesser peach tree borer was injuring trees rather badly in a small home orchard near Florence, Rankin County, in December.

PLUM CURCULIO (Conotrachelus nenuphar Hbst.)

Georgia. C. H. Alden (February 21): The plum curculio is still in hibernation at Cornelia.

PLUM

MEALY PLUM APHID (Hyalopterus arundinis Fab.)

California. L. M. Smith (February 23): The mealy plum aphid, H. pruni (Geoffroy), is unusually abundant in prune orchards in San Joaquin County. There are more eggs present on the trees than there have been in the past 4 years.

RASPBERRY

ROSE SCALE (Aulacaspis rosae Bouche)

Nebraska. M. H. Swenk (February 15): During the second week in February a Richardson County correspondent sent in some raspberry canes heavily infested with the rose scale.

GRAPE

APPLE TWIG BORER (Amphicorus bicaudatus Say)

Mississippi. C. Lyle (February 21): Complaints of injury to grape and Scuppernong vines, which was evidently caused by the grape cane borer, were received from Waynesboro, Wayne County, and Philadelphia, Neshoba County, a few weeks ago.

CITRUS

FLORIDA RED SCALE (Chrysomphalus conidum L.)

Florida. J. R. Watson (February 26): The Florida red scale is moderately abundant.

CALIFORNIA RED SCALE (Chrysomphalus aurantii Mask.)

California. M. L. Jones (February 7): The red scale was causing medium damage generally in citrus throughout Orange County during November and December 1933. Infestation by the red scale is reported as slight on 16 acres of citrus locally and as medium locally on citrus throughout Santa Barbara County. It is reported as medium generally on citrus in San Diego County.

BLACK SCALE (Saissetia oleae Bern.)

California. M. L. Jones (February 7): The Commissioner reports the black scale as causing medium damage generally in citrus throughout Orange County during November and December 1933. He notes that parasitism continues with much better results than was expected during the early part of the season. In San Diego County the damage by the black scale was slight generally on lemons during December 1933.

PURPLE SCALE (Leucodanthes beckii Newm.)

California. M. L. Jones (February 7): Reported as causing medium damage in citrus throughout Orange County and severe damage locally on citrus throughout Santa Barbara County during November and December 1933.

CITRICOLA SCALE (Coccus pseudomagnoliarum Kaw.)

California. M. L. Jones (January 17): The citricola scale was reported as causing medium damage to 39,000 acres of citrus generally in Tulare County during December 1933.

ITALIAN PEAR SCALE (Diaspis pyricola Del G.)

California. M. L. Jones (February 7): In Sonoma County the Italian pear scale was causing severe damage to 3,000 acres of prune, apple, and pear trees locally during December 1933. The Napa County correspondent reports the brown apricot scale, Lecanium corni Bouche, and the Italian pear scale as causing medium damage to 15,000 acres of prunes generally during December. He notes that there has been a decided increase in the amount of spray material used throughout the county on these two pests, owing to a good price for the crop for the past year. He estimates that approximately 25 percent of the orchards in the county will be sprayed in 1934.

CITRUS WHITEFLY (Dialeurodes citri Riley & How.)

Florida. J. R. Watson (February 26): The citrus whitefly is moderately abundant.

Mississippi. G. I. Worthington (February 18): Slight infestation by the whitefly was noticed on gardenia at Cleveland in January.

Alabama. J. M. Robinson (February 21): The whitefly is moderately abundant at Audalusia on gardenia.

BLACK CITRUS APHID (Toxoptera aurantiae Boyer)

California. M. L. Jones (February 7): The black citrus aphid was common on citrus in Orange County in November and caused slight damage generally to citrus in December 1933.

CITRUS RUST MITE (Phyllocoptes oleivorus Ashm.)

Florida. J. R. Watson (February 26): The dry weather of the first part of the winter was responsible for an unusually heavy infestation of rust mites; at the same time it checked nearly all growth on young trees in the central part of the State, with the result that the green citrus aphid (Aphis spiraecola Patch) is rather scarce at the present time.

CITRUS RED SPIDER (Paratetranychus citri McG.)

California. M. L. Jones (February 7): Damage by the citrus red spider was general on citrus in November and medium locally on citrus in December 1933 in Orange County. Reported as severe on 39 acres of citrus locally in Santa Barbara County. The red spider, with the red scale (Chrysomphali aurantii), was scarce on 16 acres of citrus locally during December in Santa Barbara County. In San Diego County the citrus red spider was scarce generally on lemons during December.

COMMON RED SPIDER (Tetranychus telarius L.)

Mississippi. C. Lyle (February 24): J. P. Kislanko reported that he had observed heavy red spider infestation on Satsuma trees.

AVOCADO

A TORTRICID (Amorbia essigana Busck)

California. M. L. Jones (January 17): The avocado tortrix is reported as causing damage generally on avocados in San Diego County.

FULLER'S ROSE BEETLE (Asynonychus godmani Crotch)

California. M. L. Jones (February 7): Fuller's rose weevil (Pantomorus godmani) was reported as causing severe damage generally on citrus, avocados, and ornamentals in Santa Barbara County during December; also reported as doing slight damage locally on citrus and ornamentals in San Diego County.

LATANIA SCALE (Aspidiotus lataniae Sign.)

California. M. L. Jones (February 7): The latania scale was reported as causing slight damage locally on avocados in San Diego County during December 1933.

PAPAYA

PAPAYA FRUIT FLY (Toxotrypana curvicauda Gerst.)

Florida. H. T. Fernald (February 14): The papaya fruit fly is doing considerable damage at Orlando to the fruit of the papaya. I have seen it reported from near Miami.

A SPHINGID (Erinnyis alope Drury)

Florida. J. R. Watson (December 9, 1933): This sphynx is very abundant on a plantation of papayas at Lake Alfred.

TRUCK - CROP INSECTS

VEGETABLE WEEVIL (Listroderes obliquus Gyll.)

Alabama. J. M. Robinson (February 21): The vegetable weevil was moderately abundant on turnip tops at Auburn in December 1933; at Flamton, January 23; at Vinegar Bend, January 15; and on turnip tops and bulbs at McKenzie, February 17.

Mississippi. C. Lyle (February 21): Thus far the vegetable weevil has attracted less attention than during the past three or four years. Specimens of the larvae or complaints of their injury have been received from Florence in Rankin County, Lauderdale in Lauderdale County, Tybertown in Walthall County, and Bude in Franklin County. The first specimens to be received at this office during the present season were collected on January 25 at Lauderdale. (February 24): J. P. Kislanko indicated that the weevil had caused severe damage to turnips in Jones and Stone Counties and some injury in Forrest County.

California. M. L. Jones (December 1933): The Humboldt County Commissioner reports the vegetable weevil as causing slight damage on vegetables in a field of approximately one half acre. The insect is established in this county in a very limited area. The known infestation is within an area of two or three acres. Inasmuch as the infestation is confined to this small area, an eradication program is being attempted.

SPOTTED CUCUMBER BEETLE (Diabrotica duodecimpunctata Fab.)

Virginia. H. G. Walker (February 26): The 12-spotted cucumber beetles were active in fields of kale and spinach in the Norfolk area on January 25.

Florida. J. R. Watson (February 26): The spotted cucumber beetle is moderately abundant.

Alabama. J. M. Robinson (January 29): The spotted cucumber beetle is moderately abundant on beans at Irvington and Auburn.

Louisiana. W. E. Hinds (February 20): A few spotted cucumber beetles are out at Baton Rouge.

Texas. F. L. Thomas (February 21): The spotted cucumber beetle is present in a half acre of English peas at Sugarland, but it is not as abundant as D. balteata Lec.

STRIPED CUCUMBER BEETLE (Diabrotica vittata Fab.)

Louisiana. W. E. Hinds (February 20): The striped cucumber beetle is very abundant on late English peas at Baton Rouge.

Alabama. J. M. Robinson (February 21): The striped cucumber beetle is scarce at Auburn.

WESTERN SPOTTED CUCUMBER BEETLE (Diabrotica soror Lec.)

Oregon. D. C. Mote (February 23): Adults have showed up in clover fields near Corvallis.

California. A. E. Michelbacher (February 19): This beetle has been present in fair numbers all winter.

SEED CORN MAGGOT (Hylemyia cilicrura Rond.)

Mississippi. C. Lyle (February 21): The seed corn maggot has attracted the attention of early gardeners at various places. Injury to seeds and young plants in gardens was reported from Bogue Chitto in Lincoln County on January 9, injury to cabbage at Star in Rankin County and Edwards in Hinds County was reported on January 25, and a grower at Pascagoula in Jackson County reported severe injury to young English pea plants on February 3.

Texas. F. L. Thomas (February 21): The seed corn maggot is at present causing slight injury to spinach at Dickinson, Galveston County, and Winterhaven, Dimmit County.

SAY'S STINK BUG (Chlorochroa sayi Stal)

California. A. E. Michelbacher (February 19): Say's plant bug has been present in fair numbers all winter.

SOUTHERN GREEN STINK BUG (Nezara viridula L.)

Louisiana. W. E. Hinds (February 21): A pair was observed mating at Baton Rouge.

FLOWER THRIPS (Frankliniella tritici Fitch)

Mississippi. M. M. High (January 2): The wheat or grass thrips was found very abundant attacking cucumber and beans, and less numerous on tomato in Gulfport greenhouses. The writer has never before found this thrips so abundant on cucumber. The injury was severe only in one house where adults and larvae were numerous.

A MOLE CRICKET (Gryllotalpa sp.)

Alabama. J. M. Robinson (February 16): Mole crickets are moderately abundant in vegetable gardens at Brundidge.

TOMATO

TOMATO PIN WORM (Gnorimoschema lycopersicella Busck)

Pennsylvania. C. A. Thomas (February 21): Dr. Guyton's inspectors found the tomato pin worm near New Castle, Lawrence County, which is not far from the Ohio border.

Correction: The note on G. lycopersicella Busck, in the Summary for 1933, p. 335, Insect Pest Survey Bulletin, should be "southeastern Pennsylvania" instead of "northeastern" in the second line.

BEAN

MEXICAN BEAN BEETLE (Epilachna corrupta Muls.)

Ohio. N. F. Howard (February 16): The percentage of survival of overwintering Mexican bean beetles dropped considerably between January 16 and January 31. The intervening cold wave, when temperatures fell below zero, was at least partly responsible for this increase in mortality.

PEAS

BANDED CUCUMBER BEETLES (Diabrotica balteata Lec.)

Texas. F. L. Thomas (February 17): This beetle is moderately abundant in a half acre of English peas at Sugarland.

CABBAGE

CABBAGE APHID (Brevicoryne brassicae L.)

Mississippi. C. Lyle (January 1): Cabbage and turnips at Bude, Franklin County, were reported as moderately infested with plant lice.

G. I. Worthington (February 18): The cabbage aphid has been general throughout the winter on turnips, collards, and cabbage in Sunflower, Bolivar, Washington, and Coahoma Counties.

Louisiana. W. E. Hinds (February 20): The cabbage aphids are fairly abundant on the older cabbage.

CABBAGE WEBWORM (Hellula undalis Fab.)

Alabama. J. M. Robinson (February 21): On October 2, 1933, the turnip webworm was reported moderately abundant on turnips at Gadsden and Auburn. On turnips and collards at Dadeville.

Mississippi. C. Lyle (February 21): Rape was rather heavily infested at Sessums, Oktibbeha County, in November 1933.

CUCUMBERS

MELON APHID (Aphis gossypii Glov.)

Mississippi. M. M. High (January 2): The melon aphid was found fairly abundant on cucumbers, from about mature plantings to plants only a few inches high. In places, both old and young cucumbers were seriously injured.

ONIONS

ONION THRIPS (Thrips tabaci Lind.)

Louisiana. W. E. Hinds (February 22): Onion thrips were observed killing onion seedlings in large spots in seed beds at Angola in January and at Opelousas on February 22.

SPINACH

GREEN PEACH APHID (Myzus persicae Sulz.)

Virginia. H. G. Walker (February 26): A very heavy outbreak of the spinach aphid occurred on spinach, kale, and collards at Norfolk, beginning about December 15, 1933, causing serious injury until about the 10th to the 15th of January 1934. Diseased and dead aphids were present in the field almost from the beginning of the outbreak, but the fungous disease did not begin to be effective until about January 9, and then, in a period of 5 or 6 days, it killed at least 95 percent of the aphids in the Norfolk trucking area.

PEPPER

A WEEVIL (Euxenodes sp.)

Florida. J. R. Watson (November 24, 1933): Weevils were heavily infesting peppers in Dade County at Miami. (Determined by L. L. Buchanan, who says "This tropical or subtropical genus has not been reported from the United States heretofore. The Florida specimens are very close to and probably identical with an unidentified Cuban species in the National Museum collection. A related species from Central America is labeled as having been in stem of pepper plant, and also 'from eggplant'.")

Florida. F. S. Chamberlin (January 31): This weevil, reported as causing injury to peppers in Dade County the past season, could be found in only one small pepper patch this month.

STRAWBERRY

STRAWBERRY MITE (Tarsonemas fragariae Zimm.)

California. L. M. Smith (February 23): The strawberry mite has been unusually abundant in the Watsonville, Santa Cruz, and San Jose districts of California. The winter has been abnormally warm and the mite did not go into hibernation, but continued to breed and lay eggs throughout the winter.

BEETS

BEET LEAFHOPPER (Eutettix tenellus Bek.)

Idaho. R. W. Haegele (February 21): The beet leafhopper is scarce in southwestern Idaho. Mild winter and good hibernating conditions resulted in early spring populations about the same as last fall. The populations, however, are very small.

Utah. G. F. Knowlton (February 19): Beet leafhoppers are scarce to moderately abundant in northern Utah.

FOREST AND SHADE - TREE INSECTS

GYPSY MOTH (Porthetria dispar L.)

Massachusetts. Monthly Letter Bur. Ent., No. 236 (January): C. W. Collins, of the Melrose Highlands field laboratory, reports that the unusually cold weather that prevailed in New England from December 28 to December 30, inclusive, was undoubtedly fatal to eggs of the gypsy moth in sections of the infested territory where they were in exposed situations, unprotected by snow, ice, or other material.

J. N. Summers has stated that an exposure of between -20° and -25° F. is necessary to kill entire egg clusters of the gypsy moth, although some eggs in each cluster may be killed by an exposure to -15° .

BROWN-TAIL MOTH (Nygmia phaeorrhoea Don.)

Vermont. Div. of Forest Insects, Bur. Ent. (February 23): An examination of 40 hibernating webs of the brown-tail moth collected in four separate localities in Vermont in early February showed a total mortality of the hibernating larvae in all but one web taken at Ryegate. It is believed that this single web, which contained 230 living and 9 dead larvae, was protected by snow or otherwise during the cold weather.

Massachusetts. Monthly Letter Bur. Ent., No. 236 (January): There probably was some mortality of the small brown-tail moth caterpillars in their winter webs. Records of experiments and observations indicate that the caterpillars of the brown-tail moth in their winter nests can withstand slightly lower temperatures than can gypsy moth eggs. Records furnished by the Boston office of the Weather Bureau show that temperatures of -20° F. and below occurred in December at certain points throughout the territory generally infested.

Virginia. H. G. Walker (February 26): Winter webs were more plentiful in the State than at any time since 1915. Nests were found in all towns bordering the Connecticut River from Barnet south to Massachusetts and in two adjoining towns to the west. Approximately 1,100 nests were taken in a control project covering these towns. Indications point to a high percentage of mortality among the hibernating larvae.

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana Schiff.)

Massachusetts. Div. of Forest Insects, Bur. Ent. (February 23): In the Boston infestation of the European pine shoot moth two lots of 100 infested pine shoots each, collected in two different localities, showed a survival of only 1 percent.

SPRING CANKER WORM (Paleacrita vernata Peck)

Missouri. A. F. Satterthwait (February 12): Male moths are unusually noticeable the last week of January and the first week of February. Thus far this year none have been observed or reported.

L. Haseman (February 20): Male moths were on the wing in great numbers during the night of February 16 at Columbia, but two days later a light blizzard struck which has not been so good for them.

FALL CANKER WORM (Alsophila pometaria Harr.)

Connecticut and New York. E. P. Felt (March 1): Eggs were deposited in extraordinarily large numbers last fall in southwestern Connecticut, southeastern New York and western Long Island in particular, and the probabilities are that the outbreak may approach in magnitude the almost unprecedented one of last year.

SOUTHERN PINE BEETLE (Dendroctonus frontalis Zimm.)

Virginia and Pennsylvania. Div. of Forest Insects, Bur. Ent. (February 16): Four days of unusually cold weather in the last week in December resulted in a mortality of from 70 to 90 percent of the brood of the southern pine beetle in a concentrated infestation near Fairfax, Va. The brood in all of the trees was killed, except in the thicker barked portions of the larger trees. It is very likely that the later cold period of the last two weeks has resulted in added mortality. As the eggs are considerably more resistant to cold than any other stage, it is feared that a safe mortality has not yet occurred. The infestation, which during the recent mild seasons has extended up through Virginia well into Pennsylvania has received a very decided setback by low temperatures, as a very large percentage of the overwintering forms have been killed by the cold in northern Virginia.

ASH

CARPENTER WORM (Prionoxystus robiniae Peck)

Nebraska. M. H. Swenk (February 15): A report of a considerable infestation of ash trees in Nuckolls County was received early in January.

ELM

EUROPEAN ELM SCALE (Gossyparia spuria Mod.)

Colorado. G. M. List (February 20): The European elm scale has increased during the last year or two, and the open winter has not caused a very high mortality; so we expect it to be more injurious than usual.

LOCUST

A NOTODONTID (Dasylophia anguina A. & S.)

Alabama. J. M. Robinson (February 21): D. anguina reported moderately abundant at Oak Hill on October 14, 1933. (A notodontid moth known to feed on locust and other legumes. J. A. H.)

MAPLE

GLOOMY SCALE (Chrysomphalus tenebriosus Comst.)

North Carolina. Z. P. Metcalf (February 19): The gloomy scale on maples is more abundant than for the past few years. A few specimens are parasitized

OAK

CALIFORNIA OAK WORM (Phryganidia californica Pack.)

California. M. L. Jones (February 7): The California oak moth is reported as scarce on oaks locally in San Diego County.

PINE

PINE NEEDLE SCALE (Chionaspis pinifoliae Fitch)

Colorado. G. M. List (February 20): Many more reports than usual of the pine leaf scale are being received. These come from practically all sections of the State. There has been a very marked increase of this insect the last two seasons.

A PINE SAWYER (Monochamus spp.)

Alabama. J. M. Robinson (January 5): Pine sawyers are very abundant at Blount Springs.

WILLOW

SCALE INSECTS (Chionaspis spp.)

Nebraska. M. H. Swenk (February 15): Reports were received from Garden County late in January that the black willows in that region were severely infested with a scale insect; from the description it was evidently either Chionaspis ortholobis Comst. or C. salicis-nigrae Walsh.

I N S E C T S A F F E C T I N G G R E E N H O U S E

A N D O R N A M E N T A L P L A N T S

BEET ARMYWORM (Laphygma exigua Hbn.)

Mississippi. C. Lyle (February 24): On February 21 J. P. Kislanko collected some larvae from fuchsias at Hattiesburg; they have been identified as L. exigua.

A TORTRICID LEAF-TIER (Platynota stultana Wlsm.)

California. H. J. Ryan (January 22): Collected on cyclamen in two nurseries in Los Angeles County and reported doing considerable damage by mining and tying the leaves together. The larvae were quite abundant on some of the plants.

A NITIDULID (Conotelus obscurus Erichson)

Mississippi. C. Lyle (February 21): Small beetles identified by J. M. Langston as C. obscurus were reported as extremely abundant in the blossoms of dahlias, asters, and chrysanthemums in a garden at Meridian, Lauderdale County, on November 4. The species was also very abundant in dahlia blossoms at State College during the fall.

COTTONY-CUSHION SCALE (Icerya purchasi Mask.)

Alabama. J. M. Robinson (February 21): The cottony-cushion scale was moderately abundant on mimosa at Dothan on November 6, 1933.

Arizona. C. D. Lebert (February 19): A few cottony-cushion scales have been found on citrus and ornamentals in the vicinity of Phoenix. Infestations seem much lighter than in previous years.

DESTRUCTOR SCALE (Aspidiotus destructor Sign.)

Florida. E. W. Berger and J. C. Goodwin (February 22): The destructor scale is moderately abundant along the lower eastern coast.

MEALYBUGS (Pseudococcus spp.)

Nebraska. M. H. Swenk (January 1 to February 15): Complaints of infestations of house plants by P. citri Risso were received during the period here covered.

California. E. O. Essig (February 27): Mealybugs are abundant in all gardens in the San Francisco Bay Region, and have been all winter.

GREENHOUSE WHITEFLY (Trialeurodes vaporariorum Westw.)

Utah. G. F. Knowlton (February 1): Greenhouse whiteflies are damaging fuchsia and Jerusalem cherry at Yost.

ANTS (Formicidae)

Wisconsin. E. L. Chambers (February 19): Some of our florists are having unusually great inconvenience in their greenhouses because of ants, which seem to be responsible for the distribution and encouragement of the various scale insects and plant lice, principally mealybugs on peonies and begonias.

A MIDGE (Sciara inconstans Fitch)

Nebraska. M. H. Swenk (January 1 to February 15): During the period here covered, housewives complained frequently of infestations of the soil of house plants with larvae of the fickle midge and also an abundance of the adult midges in the house. These complaints were most numerous in mid-January and came from all sections of southeastern Nebraska.

ARBORVITAE

ARBORVITAE APHID (Dilachnus thujaefilina Del G.)

Mississippi. C. Lyle and assistants (February): During January specimens of the arborvitae aphid taken from arborvitae were received from Woodland, Chickasaw County, and Clinton, Hinds County. Rather heavy infestations were reported in each instance. This aphid has been general and severe throughout the winter and late fall in the northeastern part of the State.

BOXWOOD

BOXWOOD LEAF MINER (Monarthropalpus buxi Labou.)

West Virginia. F. W. Craig (February 21): I am sending a twig from a boxwood infested with what I take to be the boxwood leaf miner, collected in the east end of the city of Charleston. (Det. W. Middleton.)

CAMELLIA

CAMELLIA SCALE (Lepidosaphes camelliae Hoke)

Mississippi. C. Lyle (February 21): Camellia japonica leaves showing a heavy infestation were received from Aberdeen, Monroe County, on February 16.

TEA SCALE (Fiorinia theae Green)

Mississippi. C. Lyle (February 21): Camellia japonica leaves showing more or less heavy infestation of the tea scale have been received during the past few weeks from Lauderdale, Amite, Copiah, and Monroe Counties.

EUONYMUS

EUONYMUS SCALE (Chionaspis euonymi Comst.)

North Carolina. Z. P. Metcalf (February 19): The euonymus scale is unusually abundant in the eastern part of the State.

Mississippi. J. Milton (February 19): The euonymus scale is very abundant on euonymus on the old Capitol Grounds in Jackson.

NARCISSUS

A BULB FLY (Eumerus narcissi Smith)

United States. R. Latta (January 19): The species is quite common in bulb districts in California, but only one specimen had been found in Oregon, on a large bulb ranch near Portland. In 1931 one pair was collected in a greenhouse on Long Island, N. Y., by Blanton and Spruijt. During the past summer a single male was collected at Morning Sun, Iowa, by Helen Latta, from flowers near a bed of naturalized daffodils.

OLEANDER

POLKA DOT WASP MOTH (Syntomeida epilais Walk.)

Florida. J. R. Watson (December 1933): We received larvae from as far north as Daytona Beach, where they were said to be very abundant. They were sent in from Orlando, feeding on Carissa grandiflora. (February 26) Continued to be injurious to oleanders all winter. Reports have come from as far north as Daytona Beach and Clermont, in Lake County.

H. T. Fernald (February 14): Somebody from Gainesville last fall reported the injury to oleanders by the caterpillars of S. epilais Walk. var. jucundissima Dyar. This insect was also very abundant around Orlando.

Now the moths are appearing and laying their eggs and the eggs laid earliest have already begun to hatch. I raised some of the caterpillars last fall and got the adults last week and this, so there is no doubt as to what the caterpillars were. I have also raised from the same cage, which contained nothing else but sand, three flies which no doubt are parasites. (Det. by J. M. Aldrich as Achaetoneura sp.)

E. W. Berger and J. C. Goodwin (February 22): The oleander caterpillar is moderately to very abundant in certain localities in Hillsborough, Pinellas, and Polk Counties.

PALM

PALMETTO WEEVIL (Rhynchophorus cruentatus Fab.)

Florida. E. W. Berger and J. C. Goodwin (February 22): The palmetto weevil is moderately to very abundant along the lower eastern coast, on Phoenix canariensis.

VIOLET

CYCLAMEN MITE (Tarsonemus pallidus Bks.)

Wisconsin. E. L. Chambers (February 19): We have had several complaints of injury to violets and have investigated some of these cases, which prove to be damage by the cyclamen mite forming galls in the flower stem and deforming the blossom.

INSECTS ATTACKING MAN AND

DOMESTIC ANIMALS

MAN

MOSQUITOES (Culicinae)

Missouri. L. Haseman (February 20): Common species of mosquitoes hibernating in basements began to move out during the very springlike days of February 16 and 17 just ahead of the present cold spell.

Mississippi. G. I. Worthington (February 18): Mosquitoes were general until January 1 in buildings and other hiding places in Sunflower, Bolivar, Washington, and Coahoma Counties.

Utah. G. F. Knowlton (February 7): First and second instar mosquito wigglers were picked up yesterday in marshes at Blue Creek.

BEDBUG (Cimex lectularius L.)

Nebraska. M. H. Swenk (February 15): Inquiries as to the control of bedbugs, especially in chicken houses and brooders, were received during the period from January 8 to 27. These came from southeastern Nebraska.

DOG FLEA (Otenocephalides canis Curt.)

Nebraska. M. H. Swenk (February 15): During the second week in February several inquiries were received from northeastern Nebraska, from Thurston and Douglas Counties west to Antelope and Buffalo Counties, asking about the control of fleas, presumably C. canis, in houses, barns, and hog houses.

RAT FLEA (Ceratophyllus fasciatus Bosc.)

Alabama. J. M. Robinson (February 21): Rat fleas were moderately abundant at Montgomery on November 13, 1933.

ANTS (Formicidae)

North Carolina. Z. P. Metcalf (February 19): Ants are generally ^{troublesome} abundant and / throughout the State.

Alabama. J. M. Robinson (February 21): Ants were reported on January 8 as very abundant in houses at Birmingham and on January 22 as very abundant around fruit trees at Birmingham.

TROPICAL RAT MITE (Liponyssus bacoti Hirst)

Texas. E. W. Laake (January 24): One infestation of rat mites was reported during December 1933 and January 1934 at Dallas and vicinity.

Oregon and Washington. H. H. Stage (October and November 1933): The tropical rat mite has been a serious pest to C.W.A. employees in the vicinity of Olympia, Wash. They persisted on the bodies for some time and caused large welts and swellings in the neck and shoulder parts. These mites were also annoying in flop houses in Portland, Oreg., during October and November 1933.

HORSES

HORSE BOTFLY (Gastrophilus intestinalis DeG.)

Nebraska. M. H. Swenk (January 1 to February 15): A Dawson County correspondent reported prevalent trouble with the common horse bots (G. intestinalis) in his locality during the early part of January.

POULTRY

A BLACK FLY (Simulium occidentalis Townsend)

Iowa. C. J. Drake (February 19): The black fly, S. occidentalis, is pupating in Plymouth and Sioux Counties. Infestation is very heavy in Big Sioux and Black Rivers and their tributaries.

PIGEON FLY (Pseudolynchia maura Bigot)

Alabama. J. M. Robinson (February 21): Pigeon flies are moderately abundant at St. Elmo on pigeons.

HOUSEHOLD AND STORED-PRODUCTS INSECTS

TERMITES (Isoptera)

Alabama. J. M. Robinson (February 21): Termites were moderately abundant at Mobile on January 1 in a dwelling and on January 8 at Selma in a church; also January 15 at Wetumpka in chrysanthemum stems.

Mississippi. C. Lyle (February 21): Many letters have been received during the past few months complaining of injury to houses by termites.

Nebraska. M. H. Swenk (January 1 to February 15): A Lancaster County correspondent reported an infestation of the common termite (Reticulitermes tibialis Bks. during the second week in January).

Texas. E. W. Laake (January 24): Six infestations of termites were reported during December 1933 and January 1934 at Dallas and vicinity.

BOXELDER BUG (Leptocoris trivittatus Say)

Illinois. W. P. Flint (February 19): Reports of annoyance by boxelder bugs usually cease by the middle of November. This winter we have had reports of annoyance from these insects during all of the winter months.

Kentucky. W. A. Price (February 23): Clusters of boxelder bugs have appeared on buildings in Lexington, Covington, and Richmond.

Iowa. H. E. Jaques (February 24): Boxelder bugs are thickly sprinkled over southeastern Iowa. It has been many years since they were so abundant, and our very open winter has made it easy for them.

Missouri. A. F. Satterthwait (February 12): The boxelder bug has found frequent occasion during this winter to issue from its hibernating quarters both inside and outside of houses.

Nebraska. M. H. Swenk (January 1 to February 15): During the warm weather of January and early February many complaints of the annoying activity of boxelder bugs in the house were received from southeastern Nebraska west to Franklin and Buffalo Counties.

Oklahoma. C. F. Stiles (February 24): The boxelder bug has already made its appearance in some parts of the State. It was very numerous last fall.

Utah. G. F. Knowlton (February 19): Boxelder bugs are abundant and annoying in many localities of northern Utah.

California. A. E. Michelbacher (February 19): The boxelder bug has been present in fair numbers all winter.

EUROPEAN EARWIG (Forficula auricularia L.)

Massachusetts. H. C. Purchase (December 11): This fall, while digging in the ground at Avon, I came across a large number of these insects, and I find that they attack dahlias, in which they seem to have quite an

interest, as they do considerable damage to these plants. They go underneath the leaves of the dahlias in the evening, and the following morning the underside of the leaf is speckled with many brown spots and in a short time the leaves wither and fall off. I also found a considerable number of them around the roots of rose bushes, and they breed around the roots of sweet williams.

California. A. E. Michelbacher (February 19): The European earwig has been quite active for some time. On the 24th of December observations made at Berkeley revealed numerous egg masses. On the 21st of January egg clusters were found with great ease, and also many recently hatched young were observed.

CLUSTER FLY (Pollenia rudis Fab.)

Kentucky. W. A. Price (February 23): Cluster flies have appeared by thousands in several residences in Fayette and Carlisle Counties.

ANTS (Formicidae)

Mississippi. C. Lyle (February 21): A grower at Bogue Chitto in Lincoln County reported on January 22 that the Argentine ant (Iridomyrmex humilis Mayr) was burrowing into the crowns of his strawberry plants. This species was also reported as very troublesome in Jackson. Ants, identified by M. R. Smith as Tapinoma sessile Say, were moderately abundant during the fall in the old Argentine ant infested area at Corinth, Alcorn County. Fire ants, Solenopsis geminata xyloni McC., were troublesome in houses at Tupelo, Lee County, on December 14, and were found in large numbers destroying woolen clothing at Mississippi State College on February 22.

Nebraska. M. H. Swenk (January 1 to February 15): The basement ant (Lasius interjectus Mayr) was the subject of many inquiries from Omaha and Lincoln citizens when the winged individuals emerged, during the period from January 6 to February 15, especially during the third week in January.

CLOVER MITE (Bryobia praetiosa Koch)

Colorado. G. M. List (February 20): Inquiries in regard to the clover mite entering dwellings have been very numerous during the rather open winter.

BEAN WEEVIL (Acanthoscelides obtectus Say)

Nebraska. M. H. Swenk (January 1 to February 15): The usual number of complaints of infestation of stored navy beans with the bean weevil were received during the period here covered.

PEA WEEVIL (Bruchus pisorum L.)

Oregon. D. C. Mote (February 23): The pea weevil passed the winter with very little mortality.

INSECT CONDITIONS IN PUERTO RICO DURING OCTOBER 1933 - JANUARY 1934
San Juan Plant Quarantine Office.

LEPIDOPTERA

A light infestation of larvae of Maruca testulalis Geyer was found in the lima bean pods at Caguas on January 12, 1934. (A. S. Mills.) (Det. C. Heinrich.)

Adults of Phalonia subolivacea Wlsm. were reared from flower heads of margarita at Guayama on December 25, 1933. (Det. A. Busck) (A.S.M.)

Adults of Plutella maculipennis Curtis were present in numbers on cabbage leaves at Bayamon on January 1, 1934. (Det. A. B.) (G. G. Anderson.)

A 1 percent infestation of larvae of Etiella zinckenella Tr. was found in pigeon pea pods while examining five boxes at Isabela on December 6, 1933. (Det. C. H.) (A. G. Harley.)

HOMOPTERA

Young shoots of Jasminum sp. were thickly covered by Ormenis pygmaea Fab. and O. marginata Brunn, at Mayaguez on November 24, 1933. (Det. P. W. Oman.) (A. G. H.)

A moderate infestation of Tritogenaphis ambrosiae Thos. was on the leaves of lettuce at Villalba on November 21, 1933. (Det. P. W. Mason.) (R. G. Oakley.)

One grapevine (Vitis vinifera) was rather lightly infested with Aphis illinoisensis Shimer at Mayaguez on October 13, 1933. (Det. P. W. M.) (A. G. H.)

Adults of Nezara viridula L. were common on fruit of tomato at Loiza on November 27, 1933. (Det. H. G. Barber.) (R. Faxon.)

COLEOPTERA

Several adult Diabrotica annulata Suffr. were on leaves of 5 wild cucumber vines at Villalba on October 26, 1933. (Det. H. S. Barber.) (R. G. O.)

A few adults of Galerucella varicornis Weise were on Cordia sulcata leaves at Ponce on December 5, 1933. (Det. H. S. B.) (R. G. O.)

A large number of Cerotoma ruficornis Oliv. adults were on squash leaves at Aguine on December 4, 1933. (Det. H. S. B.) (R. G. O.)

A small number of Stolidota geminata Say adults were on the fruits of orange at Ponce on December 9, 1933. (Det. E. A. Chapin.) (R. G. O.)

An adult Lachnopus coffeae Mshll. was caught on a leaf of Melia sp. at Ponce on October 30, 1933. (Det. L. L. Buchanan.) (R. G. O.)

An adult Diaprepes capsicalis Mshll. was found on a leaf of carrot at Villalba on November 21, 1933. (Det. L. L. B.) (R. G. O.)

DIPTERA

Argyrophylax albincisa Wied. adults were numerous on banana leaves at Guayama on December 24, 1933. (Det. J. M. Aldrich.) (A. S. M.)

Adults of Lixophaga diatraeae Tns. were numerous on banana leaves at Guayama on December 24, 1933. (Det. J. M. A.) (A. S. M.)

Many Agromyza caerulea Malloch adults were reared from flower heads of margarita at Guayama on December 25, 1933. (Det. J. M. A.) (A. S. M.)

Psychodid adult, larvae, and pupae (Psychoda albipunctata Will.) were reared from a dead cockroach which was lying in a wet position at Mayaguez on October 13, 1933. (Det. Alan Stone.) (A. G. H.)

ORTHOPTERA

Nymphs of Ellipes minuta Scudd. were common on leaves of cucumbers at Caguas on November 17, 1933. (Det. A. N. Caudell.) (C. G. A.)

INSECT CONDITIONS IN COSTA RICA OCTOBER 1 - December 31, 1933

C. H. Ballou, San Jose, Costa Rica.

(Unless otherwise indicated, observations were made at San Pedro de Montes de Oca.)

COCCIDAE

Aulacaspis pentagona Targ. was very abundant and severely damaging peach during the time here covered, and observed damaging Diospyros virginiana and Hibiscus mutabilis. This scale was observed on peach at Gaudalupe, at San Ysidro de Coronado, and at Paso Ancho de Sebastian in late November and early December.

Pseudococcus citri Risso was noted as damaging mandarin and orange during the time here covered and during December was observed in injurious numbers on coffee.

Saissetia hemisphaerica Targ. was noted in damaging numbers on Diospyros kaki the last of October. The scale was being attended by Solenopsis geminata Fab.

Chrysomphalus dictyospermi Morg. was noted in damaging numbers on rose at Chapui on October 8. The scale was very abundant on and injurious to orange the middle of December.

APHIDIAE

Toxoptera aurantiae Boyer damaged orange during the entire period.

Aphis spiraeicola Patch was appearing in injurious numbers on orange the last of December. All stages were present.

Aphis pomi DeG. was noted as injurious to quince on November 28, 1933.

The chermid Freysuila ernstii Schwarz was observed in injurious numbers on Caoba (Guara caoba) the first of October, when all stages were present. On October 10 the trees were sprayed with water, which removed the waxy coating of nymphs, giving about 98 percent control.

MISCELLANEOUS HOMOPTERA

Membracis mexicana Guer. was present in injurious numbers during the period here covered, guapinol (Hymenaea courbaril), guachipelin (Diphyssa robinoides), soursop, and coffee being attacked. Egg scars in coffee trees were very numerous the last of December at Guadalupe and at San Francisco de Los Rios, as well as at San Pedro de Montes de Oca.

Aconophora pallescens Stal was observed damaging quince on December 26, at which date all stages were present.

Antianthe expansa Germ. was noted damaging eggplant and pepper (Capsicum annum) during the middle of November. It was also very abundant on and injurious to pepper at Paso Ancho de San Sebastian the first of December.

HEMIPTERA

Collaria oleosa Dist. was observed in injurious numbers on various grasses during the period here covered.

Halticus canus Dist. was noted damaging Phaseolus vulgaris during November.

Stenomacra marginella H. S. was observed in injurious numbers on Persea americana and P. drymifolia.

Cryptopeltus notatus Dist. was observed on tomato at Paso Ancho de San Sebastian as well as at San Pedro de Montes de Oca during December.

Leptoglossus zonatus Dall. was noted damaging asparagus during October and tomato during December.

COLEOPTERA

Cerotoma rogersi Jac. injured soybean during the period here covered.

Epilachna virgata Muls. was noted as very injurious to dama (Citharexylum caudatum) during the last of October.

Epitrix fuscata Jac.-Duv. was injurious to potato during late October and was destroying the tomato crop by the middle of December. The beetle was also observed on tomato at Paso Ancho de San Sebastian on December 10.

Diabrotica mummularis Harold was damaging tacaco (Polakouskia tacaco) during the middle of October. The beetle was observed ruining roses at Chapui on October 8.

Nodonota lateralis Jac. was noted as destructive to dahlia at Paso Ancho de San Sebastian on October 14. N. irazuensis Jac. was present in injurious

numbers during the period here covered, attacking corn, soybean, guava, beans, zinnia, camellia, bottle bush (Callistemon lanceolatus) and murta (Calypttranthes costaricensis). It was observed at San Ysidor de Coronado and Paso Ancho de San Sebastian, as well as San Pedro de Montes de Oca.

The scarabaeid Gymnetis liturata Oliv., which scars fruit stems to suck the juice, was observed damaging avocado on December 16.

LEPIDOPTERA

Jocara claudalis Mosch. and J. subcurvalis Schaus appeared in injurious numbers on Persea americana during October and December. Damage by J. claudalis was also observed at Paso Ancho de San Sebastian during December.

Stenoma sororia Zell. was observed injuring Persea americana during the time covered by this report.

Caterpillars of Halisidiotia underwoodi Roths, were observed injuring plum (Prunus cerasifera var. pissardi) on December 14.

Caterpillars of Leucinodes elegantalis Guen. were destroying a large part of the fruit of the tomato tree all during the month of October.

ORTHOPTERA

A tettigoniid, Cocconotus ravyi Rehn, was present in injurious numbers during the period here covered. Cabbage, dracena (Corydine terminalis, and Dracaena fragrans), geranium (Pelargonium sp.), granadilla (Passiflora ligularis), Miltonia andresii, vagueta (a handsome orchid), and coffee were being attacked. On November 27 it was observed injuring coffee at San Francisco de Dos Rios.

DIPTERA

Maggots of Anastrepha striata Schin. were observed on November 18 ruining the fruit of guava.

INSECTS COLLECTED AT VICOSA, MINAS GERAIS, BRAZIL

By E. J. Hambleton

Escola Superior de Agricultura e Veterinaria, Vicosa, Minas Gerais.

COLEOPTERA

Nodonota granosa Lef. ? (new to U.S.N.M.) was found attacking sunflower on March 5, 1932. (Det. H. S. Barber.)

Stephanoderes braziliensis Hopk. was found attacking quince on March 4, 1932 (Det. M. W. Blackman) and attacking Mandioc on June 6, 1933.

Kyleborus affinus Eichh. was attacking palm on May 19, 1933. (Det. M. W. B.)

Haptonchus luteolus Er. was attacking citrus fruit on July 23, 1933. (Det. E. A. Chapin.)

Gnathocerus cornutus Fab. was attacking corn on Feb. 10, 1933. (Det. E. A. C.)

Europs sordidus Grouv.(?) was attacking citrus fruit on July 23, 1933. (Det. W. S. Fisher.)

Litargus tetraspilotus Lec. was attacking citrus fruit on July 23, 1933. (Det. W. S. F.)

HEMIPTERA

Nysius ellipticus Berg. was attacking sunflower on March 5, 1932. (Det. H. G. B.)

Asthenidea clara B. White was attacking citrus fruit on July 23, 1933. (Det. H. G. B.)

PARASITIC HYMENOPTERA

Anastatus punctiventris (Ashm.) was attacking Orthoptera eggs on August 20, 1932. (Det. A. B. Gahan.)

Trichaulus piliventris (Mayr) was collected August 30, 1931; specimens found attacking curculionid larvae. (Det. A. B. G.) (This parasite is one of the Idarnines which are all supposed to be parasites of fig insects, i. e., Agaonidae. A. B. G.)

Eupelmus coccidivorus Gahan was attacking Ceroplastes sp. on May 22, 1933. (Det. A. B. G.)

Trichogramma minutum (Riley), dark race, were collected on Diatraea eggs on May 4, 1932. (Det. A. B. G.)

Spilochalcis immaculata Cress. was collected on Alabama argillacea on May 10, 1931. (Det. A. B. G.)

Eupelmus cushmani Cwfd. was collected on Alabama argillacea from Mar. - June, 1931 - 33. (This parasite is active from March until June.) (Det. A.B.G.)

Specimens of Hemiteles n. sp. were found attacking Alabama argillacea larvae from March to June, 1931. (Det. R. A. Cushman.)

Hemiteles n. sp. was found attacking Alabama argillacea Hbn. larvae from March to June, 1932. (Det. R. A. C.)

Eucoilidea sp. was found attacking the cabbage leaf miner on July 10, 1932. (Det. L. H. Weld.)

Idechthis canescens Grav. specimens were found attacking noctuid larvae on February 15, 1932. (Det. R. A. C.) (The breeding records look doubtful. This species is normally parasitic on stored-product pests such as Ephestia kuehniella Zell. R. A. C.)

Copidosoma truncatellum (Dalm.) was found attacking lepidopterous larvae June 29, 1933. (Det. A. B. G.)

Ophion ancyloneura Cam. specimens were found attacking curculionid larvae on March 15, 1930. (Det. R. A. C.) (A very peculiar host for an Ophion. R. A. C.)

Hadronotus brasiliensis Lima was reported attacking pentatomid eggs on March 21, 1933. (Det. C. F. W. Muesebeck.)

INSECT CONDITIONS IN EGYPT DURING NOVEMBER 1933 - FEBRUARY 1934

By Arthur H. Rosenfeld

Botanical and Plant Breeding Section, Ministry of Agriculture,
El Giza, Egypt.

The peasants of the Kharga and Dekhla Oases complained that the weevil Tanymecus musculus Fahr. was gnawing stems of barley and wheat; it was controlled with poisoned bran used for grasshoppers. Feb. 4, 1934.

The spiny bollworm (Earias) attacked cotton this past year more severely than usual, infestations as high as 12 percent being common around Bilkas, Sherbin, and Abu Masoud, all in Bihera Province. Feb. 4, 1934.

Dr. Ismail Fahmy, in charge of borer investigations for the Ministry, reports that he has found Pyrausta nubilalis Hbn. on maize at Fakous, Ikyad, and Samaana, all in Sharkia Province, an infestation of 10 to 15 percent. (Feb. 4, 1934.)

Pyrausta nubilalis Hbn. was reported by Entomologist Ismail Fahmy on December 25, 1933, as infesting about 3 percent of the maize at Rosetta and Port Said, thus greatly extending the known eastward range of the European corn borer. No reports of infestation by this insect have been made in Palestine. Fahmy has recently made a systematic search for it, starting from Mansoura to Kafr-el-Arab on the east side of the Damietta branch of the Nile, and from Talkha to Kafr-el-Battikh on the west side. On the east side he found the first infested area at Mahalet Inshak (about 12 miles north of Mansoura) and from there northwards an infestation ranging from 2 to 10 percent. On the west side he found it in all the area examined, infestation ranging from 2 to as high as 20 percent. The highest infestation was around Markaz Sherbin, this area averaging about 15 percent.

Eriosoma lanigerum Hausm. was collected on apples from Assiut on November 15, 1933.

We have two borers, Sesamia cretica Led. and Chilo simplex Butl., neither of which has done much damage this year, except in one locality where old corn stalks were piled up for sale during the winter in the midst of cane fields and thus were afforded ideal hibernating conditions. Collected November 15, 1933.

Anacridium aegyptium L. early in October attacked some cotton fields at Ezbet Khourshid, near Alexandria, where it was controlled, according to the Entomological Section, by hand picking in the early morning, no serious damage occurring. In Assiut Province, Upper Egypt, this species has the habit of collecting in large numbers in the fall in orchards and on high ground, but only a few were observed in October 1933, the Government entomologists

attributing this to previous annual campaigns against them. Incidentally another locust, Locusta migratoria L., is reported to have assumed considerable importance in the Sudan. (Reported December 25, 1933.)

Our main cane insects are the two Pseudococcus--P. calceolariae Mask. and P. boninsis Kuw. In former years they have caused much damage, but have been but little in evidence this past year, possibly owing to the record breaking heat last June, when the maximum in the shade in the Upper Egyptian cane fields was very frequently about 115 degrees and several times approached 120, and also to the ravages of coccinellids, which right now (Nov. 15, 1933) are very abundant.

Incidentally a cane pest, Aphis maidis Fitch has been destructive to late maize this season (1933), in many cases the tassels having been so seriously damaged as to interfere with pollination. The attack was most notable during the last weeks in October and the first of this month, and one of our entomologists told me yesterday that he estimated a loss of around half a million bushels of corn in Egypt as a result of this insect's attack. Natural enemies appear to be particularly scarce this year, although coccinellids and syrphids are now (November 15, 1933) getting in some good work.

Aphis laburni Kalt. reported on Phaseolus and other beans on November 15, 1933.

Aphis compositae Theob. on Cestrum sp. from Giza on November 15, 1933.

Myzus braggii Gill. on artichokes from Giza on November 15, 1933.

Hyalopterus arundinis Fab. and H. insignis Theob. reported on bamboo from Giza November 15, 1933.

Chaitophorus populi L. on white poplar at Giza November 15, 1933.

INSECT PEST SURVEY BULLETIN

Vol. 14

April 1, 1934

No. 2

THE MORE IMPORTANT RECORDS FOR MARCH, 1934

During the month reports of grasshoppers emerging were received from several places in the Northwest. These refer to the noneconomic species which passed the winter as nymphs. The economic species, so far as our records show, have not yet started to emerge in the Northwest, although they were reported as emerging in large numbers late in the month in the Salt River Valley of Arizona. The winter throughout the Northwest has been especially mild and dry and there is every indication that the grasshoppers have overwintered in large numbers. Severe winds in South Dakota have so badly blown the soil in some areas that eggs are exposed or buried so deep that there is but little chance of their hatching. However, despite these conditions there appear to be plenty of eggs to cause a very serious infestation.

Mormon cricket outbreaks are expected on the Fort Hall Indian Reservation and near Idaho Falls in Idaho, and on the Crow Indian Reservation in Montana. A second infestation in Montana occurs west of the Crow Reservation and extends into the State of Wyoming.

Over much of the territory infested by the Japanese beetle heavy snows in the period of extremely low temperatures during the past winter kept the soil temperature well above the lethal point for this insect and no unusual winter mortality is expected.

Up to the middle of January the chinch bug had suffered only 5 percent mortality in Indiana. By the end of March 3 percent winter mortality was recorded from Missouri, with similar low mortality reported from Kansas, Nebraska, and Iowa. The severe weather that prevailed during the last few days of the month, however, may have a decided effect upon the chinch bug populations in parts of the infested area.

Reports from Indiana and Tennessee indicate that the hessian fly has passed the winter very successfully in that section, having suffered but 4 percent winter mortality, while reports from Kansas indicate that approximately 7 percent died during the winter months.

Examinations made in New Jersey indicate that the corn ear worm was unable to withstand the severe winter temperatures. In Missouri, however, some pupae have been found that passed the winter successfully.

The March cold spell in Missouri, when temperatures reached 14° below zero, resulted in the death of about 30 percent of the codling moth larvae that were above the snow line. Heavy mortality was reported from the New England and Middle Atlantic States. From Kansas to the Pacific Northwest winter mortality has been negligible. In Kansas a few pupae were found during the first part of February and in the Pacific Northwest pupation was well under way during the second and third weeks of March. Reports from Washington and California indicate that along the Pacific Coast codling moth development is some 10 days to 3 weeks earlier than usual. On March 13 a moth was collected in the field in Sacramento County, California, and by the 24th the adults were out in considerable numbers.

The San Jose scale appears to have suffered severe winter mortality in the New England and the Middle Atlantic States. Similar severe winter mortality is reported from Missouri. Observations made in Massachusetts indicate that -50° F. resulted in killing 89 percent, -22° F. in killing 75 percent, and -18° F. in killing 70 percent of the scales above the snow line.

The first plum curculio collected this season at Fort Valley, Ga., was found on March 21, indicating the probability of two broods in this section.

Grape leafhopper populations are very heavy in the San Joaquin and Imperial Valleys of California, and present indications are that infestations will be severe.

A small infestation of the vegetable weevil was found in Sacramento County, Calif., this spring. This is said to be the first positive record for this insect in the Sacramento Valley.

The Mexican bean beetle suffered heavy mortality in open fields in New Jersey. This does not, however, preclude the possibility that this insect successfully wintered over in the wooded areas. Adults that had successfully passed the winter were collected late in March in West Virginia.

The harlequin bug suffered complete mortality in open fields in New Jersey. No reports on this insect from other northern States have been received.

The cotton leaf worm produced successive generations throughout the winter in Haiti, the last two pupal periods coming the latter part of January and the latter part of February. Observations that will be made in Florida on the first appearance of the moths this year may possibly be associated with the observations being made in Port-au-Prince.

? Possibly owing to the very mild winter in the West, the fall and spring canker worms produced adults during the early part of January. The infestation in Kansas is the heaviest in many years.

The European pine shoot moth suffered heavy winter mortality, as high as 99 percent mortality having been recorded from points in Massachusetts and 80 to 90 percent in Connecticut.

GENERAL FEEDERS

GRASSHOPPERS (Acrididae)

- North Dakota. J. A. Munro (March 19): Numerous specimens of noneconomic forms of grasshoppers have been received from farmers in western counties during the past winter. Conditions to date appear to have been ideal for the overwintering eggs of the economic species.
- South Dakota. H. C. Severin (March): In South Dakota we have had much wind and blowing of soil. In some areas the soil has blown to such an extent as to expose many grasshopper eggs, which have dried out and died. Along fences the soil has sometimes accumulated and buried the eggs from a few inches to 2 feet or more. However, there are plenty of eggs that are passing the winter successfully. The winter has been exceptionally mild and dry.
- Iowa. H. E. Jaques (March 24): Some nymphs are showing up. (These are probably noneconomic species. J. A. H.)
- Nebraska. M. H. Swenk (March 19): Grasshoppers are moderately to very abundant in northeastern, northern, and western Nebraska. From Chase County comes the report that in the Frenchman Valley grasshoppers have lived over the winter, and that during the second week in March they were eating around the edges of the wheat for a depth up to 25 feet. This probably refers to Chortophaga viridifasciata DeG., the green-striped grasshopper, or to species of Arphia or Fardalophora.
- Arizona. C. D. Lebert (March 9): Young grasshoppers were reported as being very numerous on 80 acres of alfalfa east of Gilbert, a short crop of alfalfa having been badly riddled. (March 21): Melanoplus mexicanus Sauss. are hatching by the thousands on ditch banks and fence rows in the Mesa-Chandler area. They are confined almost entirely to Bermuda grass along fence rows and ditch banks at present. Control measures are being practiced in this area.
- Wyoming. C. L. Corkins (March 20): Grasshoppers have wintered normally and are very abundant.
- Utah. G. F. Knowlton (March 21): No grasshoppers have been observed as yet.

MORMON CRICKET (Anabrus simplex Hald.)

United States. Division of Cereal and Forage Insects (March 2): In Idaho, an outbreak of this pest has been in progress on the Fort Hall Indian Reservation at Blackfoot for the past two years. The Bureau of Entomology, the Idaho State authorities, and the Indian Service have succeeded thus far in keeping this outbreak under control but it again threatens to be a serious problem in the spring of 1934. Another outbreak is forming near Idaho Falls and St. Anthony, Idaho. In Montana a serious condition due to this insect pest has appeared on the Crow Indian Reservation near the Pryor Mountains where the insects are beginning to invade privately owned lands. A survey made by State authorities in the summer of 1933 showed that 120,000 acres of land on the Crow Reservation was infested with the

Mormon cricket and that about 15 square miles was infested in the Dryhead area west of the reservation near the Wyoming boundary. The insect is reported to be present in large numbers in the latter State in territory contiguous with the infestation in Montana previously mentioned.

ARMY CUTWORM (Chorizagrotis auxiliaris Grote)

Kansas. H. R. Bryson (March 20): The army cutworm is moderately abundant in wheat and alfalfa fields. At Manhattan the larvae are more plentiful in the old alfalfa fields than in new fields. Some damage to wheat has been reported from Winfield, Cowley County, and in the vicinity of Hutchinson, Reno County.

Wyoming. C. L. Corkins (March 20): C. auxiliaris is moderately abundant but not active in Hot Springs County.

ALFALFA WEBWORM (Loxostege commixtalis Walk.)

Kansas. H. R. Bryson (March 20): Many overwintering larvae in tubes were sent in from Hoxie. Overwintering tubes were said to be very numerous in fields where pigweeds were present. There have been heavy flights of moths during the last few years.

WIREWORMS (Elateridae)

New Jersey. R. C. Burdette (March): A few wireworms are appearing in plant beds in northern New Jersey.

Indiana. J. J. Davis (March 27): Wireworms are reported as abundant in some muck fields of northern Indiana.

Texas. F. L. Thomas (March 20): Wireworms are very abundant at Nixon, Gonzalez County. A correspondent states that he has planted corn the third time and that wireworms have destroyed practically all plantings.

California. E. O. Essig (March 22): Wireworms are moderately abundant in the Delta Region.

A. E. Michelbacher (March 21): Limonius canus Lec. was moderately abundant at Courtland, Sacramento County.

M. L. Jones (March 16): Tulare County reports wireworms as causing slight damage to 50 acres of truck crops and melons generally during February.

F. H. Wymore (March 21): Wireworms are moderately abundant at Davis, Yolo County, attacking tomato plants in cold-frame beds.

JAPANESE BEETLE (Popillia japonica Newm.)

New Jersey. Japanese Beetle Laboratory (Bur. Ent.) (March 2): Although the air temperature for the month in New Jersey reached as low as -13° F., the soil temperatures recorded at the Moorestown laboratory did not go below 22° F. The larvae of the Japanese beetle does not withstand temperatures much below 15° F. This cold wave has been accompanied by snow, which has so protected the ground that the temperatures apparently have not reached a point where they would kill many larvae.

KOO-TSABE (Ephydra hians Say)

Nevada. G. G. Schweis (February 23): Winnemucca Lake is a body of water approximately 25 miles long and from 6 to 10 miles wide. It formerly was a fresh water lake but of late years the streams that fed it have been diverted for irrigation purposes and the lake is now very saline. Fish formerly abounded there in great numbers but the lake is now devoid of all fish life so far as I know. Great quantities of seaweed abound in this lake and this weed is apparently the breeding place for the insects we are sending you. These flies are so numerous that during the warm part of the day, as they fly along the shore, you would think a snowstorm was in progress if the flies were not black. As soon as the sun dips behind the horizon the insects all fly in a certain direction and by nightfall they are clustered in great heaps in depressions or under bushes, where they apparently seek some protection from the chill night air. The larval form apparently is of some value as duck food, as ducks that I have killed there have had their gullets practically filled with small maggots. Ducks occur there in great numbers. (Det. J. M. Aldrich.)

COMMON RED SPIDER (Tetranychus telarius L.)

Virginia. H. G. Walker (March 26): Examination of strawberry fields in Princess Anne County have shown that some of the fields are infested.

North Carolina. W. A. Thomas, Monthly Letter, Bur. Ent. No. 237 (February): "On January 30 the temperature at Chadbourn dropped from normal spring weather levels to 8° F. with a maximum temperature during the day of 26° F., followed by another drop on the morning of January 31 to 5½° F., which apparently is a low record for the section. Following this low temperature, strawberry leaves infested by the red spider were collected and brought to the laboratory for examination. These examinations revealed that practically all adults and nymphs had been killed, but the eggs were apparently not affected. These were hatching freely within 3 days. The red spider has been particularly abundant on strawberries during the past year (1933). This condition has been greatly aggravated by the long-continued drought which lowered the vitality of the plants."

Mississippi. C. Lyle and assistants (March): Red spiders were found to be moderately abundant on azalea leaves at Pecan, Jackson County, on March 5. They are generally distributed in strawberry fields in Lauderdale and Jackson Counties.

Texas. F. L. Thomas (March 15): The red spider is abundant on strawberry plants in Galveston County, according to J. N. Roney. About 50 percent of the plantings are infested and control measures are being practiced.

California. M. L. Jones (March 16): Santa Clara County reported the red spider as causing slight damage on violets and sweet peas during January and February.

CEREAL AND FORAGE - CROP INSECTS

WHEAT AND OTHER SMALL GRAINS

CHINCH BUG (Blissus leucopterus Say)

- Indiana. P. Luginbill and W. B. Noble, Monthly Letter Bur. Ent., No. 237 (February): Hibernating chinch bugs evidently suffered very little mortality in the vicinity of Lafayette up to January 19. Of 465 bugs in bunches of corn husks taken from the field on that date, only 5 percent were dead. Up to that time the weather was very mild, the lowest temperature recorded at Lafayette having been -29° F., with very little snow and precipitation considerably below normal.
- Illinois. W. P. Flint (March 20): Chinch bugs show only about a 3 percent winter mortality in recent counts at Urbana. It is estimated that there are at least five times as many bugs in hibernation as there were a year ago on the same date.
- Iowa. C. J. Drake (March 26): Winter mortality has been extremely low; in counts we found that considerably less than 1 percent of the bugs perished during the winter months.
- Missouri. L. Haseman (March 21): The chinch bug situation continues serious. Late February burning in some cases gave 50 percent kill but since burning severe weather has killed over 15 percent in burned as well as unburned clumps.
- Nebraska. M. H. Swenk (March 19): The chinch bug is very abundant in southeastern Nebraska.
- Kansas. H. R. Bryson (March 20): Chinch bugs were more numerous in hibernation this winter at Manhattan than they have been for five or six years. This is generally true for central and southeastern Kansas. Owing to the mild, dry winter very little mortality resulted this year. Adults were taken on Kentucky bluegrass plots, March 15.

HESSIAN FLY (Phytophaga destructor Say)

- Indiana and Tennessee. Monthly Letter Bur. Ent., No. 237 (February): Practically all the hessian fly were in puparia and dormant at Lafayette, Ind., in January. At Fayetteville, Tenn., however, the mild weather and ample rainfall during January actually caused a little pupation. Curtis Benton found 2 live pupae in 100 puparia dissected on January 26. His dissections of puparia late in January showed about 4 percent mortality.
- Nebraska. M. H. Swenk (March 19): Hessian flies are moderately abundant in south-central and southeastern Nebraska.
- Kansas. H. R. Bryson (March 23): Hessian flies are scarce at Manhattan and normal in abundance in the central part of the State. A report from Havana, Montgomery County, indicates that the fly is moderately abundant in the southeastern part of the State.
- J. R. Horton, Monthly Letter Bur. Ent., No. 237 (February): Dissections

of over 300 puparia of the fall generation during December and January indicate that approximately 93 percent of the larvae are viable and that over 55 percent have reversed their position in the puparia.

A CRANE FLY (*Tipulidae*)

California. A. E. Michelbacher (March 21): On the 28th of February serious injury to a grain planting by tipulid larvae was observed near Niles. The stand was destroyed over a rather extensive area.

TOBACCO THRIPS (*Frankliniella fusca* Hinds)

Florida. J. R. Watson (March 20): Moderately abundant on rye during the latter part of February and March.

CORN

CORN EAR WORM (*Heliothis obsoleta* Fab.)

New Jersey. T. J. Headlee, R. C. Burdette, and B. F. Driggers (March): Diggings made for pupae in southern New Jersey showed all of them to be killed by the cold weather.

Florida. J. R. Watson (March 20): The corn ear worm is scarce.

Missouri. L. Haseman (March 21): Recent diggings show that some pupae have survived the winter.

Texas. F. L. Thomas (March 20): The first eggs were found by Dr. R. K. Fletcher in alfalfa in Burleson County today.

ALFALFA

ALFALFA WEEVIL (*Hypera postica* Gyll.)

California. E. O. Essig (March 22): Alfalfa weevils are moderately abundant throughout infested areas.

A. E. Michelbacher (March 21): The alfalfa weevil situation is as follows: In the Tracy area the weevil can be found in all fields. On March 20 the highest population was encountered at Vernalis. There an average of 1,198 larvae were collected to the 100 sweeps. In the field examined some damage was noticeable, although not of a serious nature. In all other fields examined the average number of larvae taken per 100 sweeps ranged from 2 to 200, in which fields no damage is apparent. In the Pleasanton district average larval counts of from 67 to 516 were taken on March 15. Up to that time no injury was apparent, and every indication was that the alfalfa for the most part would reach maturity before much injury occurred. It is the young vigorously growing fields in which the larval counts remain very low. In the country about Niles the highest larval counts have been taken. In one field an average count of 2,020 was taken to the 100 sweeps on March 14, and in other fields on the same date average counts of as high as 575 were taken. One field was swept today and an average count of 754 larvae was collected. The average taken from this field on the 14th was 552. In this district some injury is noticeable, but this is not true of all fields.

PEA APHID (Illinoia pisi Kalt.)

Kansas. H. R. Bryson (March 20): Pea aphids, are more plentiful than usual. They are more abundant on fall-sown alfalfa than on the old stands. Winged forms were found in the fields as early as February 15. They are reproducing rapidly at present and if the cold, dry weather continues, an outbreak is likely to occur. Unlike other years, the infestations do not occur in spots, but they are generally distributed over the entire field.

California. A. E. Michelbacher (March 21): The pea aphid on alfalfa is not so serious this year as it was last.

SUGARCANE

SUGARCANE BORER (Diatraea saccharalis Fab.)

Louisiana. W. E. Hinds (March 26): Winter mortality of the sugarcane borer appears to be unusually low. Possibly this is due to the fact that the winter has been unusually cool through February and March, with less fluctuation between maximum and minimum. Minimum temperatures have not gone below 25° F. in the real cane belt. Pupation of hibernating larvae often occurs during February, but this year the first pupae were found during the last week of March at LaPlace.

F R U I T I N S E C T S

APPLE

CODLING MOTH (Carpocapsa pomonella L.)

Vermont. H. L. Bailey (March 28): The codling moth is moderately abundant; some larvae have been reported dead from winter killing.

Massachusetts. A. I. Bourne (March 28): From such observations as it has been possible to make at Amherst we anticipate a considerable mortality of the codling moth.

New York. P. J. Parrott (March): Many hibernating larvae have been killed by low temperatures in some sections of western New York.

New Jersey. T. J. Headlee, R. C. Burdette, and B. F. Driggers (March): The codling moth is moderately abundant.

Delaware. L. A. Stearns (March 23): There has been a 40-50 percent mortality of overwintering larvae. No pupation yet.

Georgia. C. H. Alden (March 19): There has been no pupation noted at Cornelia.

Missouri. L. Haseman (March 21): At Columbia the recent -14° F. temperature has apparently killed about 30 percent of larvae exposed above the snow line.

Kansas. H. R. Bryson (March 20): The codling moth wintered over in greater numbers than it has been known to do previously in northeastern Kansas. The

mortality during the winter has been negligible. Overwintering larvae are abundant over the State. Some pupae were taken at Manhattan the first part of February.

Idaho. R. W. Haegeler (March 20): Codling moths are very abundant in southwestern Idaho. Larvae were pupating in abundance during the week of March 12 - 19.

Washington. E. J. Newcomer (March 14): The season is the earliest recorded in the last 20 years for the codling moth, being a week or 10 days earlier than the very early season of 1926. The winter has been extremely mild, the lowest temperature recorded having been 21° F. on November 29. This, together with a very large worm population in neglected orchards, is going to make control very difficult this year. The calyx spray will probably start about April 10, a month earlier than in 1933.

California. S. Lockwood (March 24): On March 13 an adult was found in a pear orchard in Sacramento County. This is the earliest date that adults have been caught that I know of. Reports from other areas indicate that the moth is out in considerable numbers. This is about two to three weeks earlier than usual.

EASTERN TENT CATERPILLAR (Malacosoma americana Fab.)

Vermont. H. L. Bailey (March 28): The eastern tent caterpillar is moderately abundant. Winter killing is apparent in egg masses collected at Montpelier.

Massachusetts. A. I. Bourne (March 28): At Amherst eggs from orchards where temperatures ranged from -20 to -30° F. are hatching apparently normally.

Connecticut. W. E. Britton (March 23): Egg clusters on twigs are moderately abundant.

West Virginia. L. M. Peairs (March 24): Egg masses are numerous at Morgantown.

Arkansas. W. J. Paerg. (March 21): Young caterpillars began emerging from eggshells on March 20 at Fayetteville. On the 21st about 80 percent had emerged. Egg masses are very abundant this year.

FRUIT TREE LEAF ROLLER (Cacoecia argyrospila Walk.)

California. E. O. Essig (March 22): Fruit tree leaf rollers are moderately abundant; they are just appearing in middle California.

M. L. Jones (March 21): Fruit tree leaf rollers are moderately abundant working in the base of young apricot fruits at Vacaville, Solano County.

F. H. Wymore (March 21): Fruit tree leaf rollers are moderately abundant in Solano and Sonoma Counties. Although common in many orchards, little damage has resulted from their feeding.

APHIDS (Aphidae)

Vermont. H. L. Bailey (March 28): Fruit aphids, (Aphis pomi DeG.) are scarce.

Massachusetts. A. I. Bourne (March 28): No actual counts have been made on plant lice at Amherst but we have found a slight amount of hatching and

a very large percentage of shriveled eggs. This is also confirmed by reports which we have received from Connecticut.

Connecticut. W. E. Britton (March 23): Fruit aphid eggs are scarce on twigs.

New York. P. J. Parrott (March): Grain aphid: (Rhopalosiphum prunifoliae Fitch) and green aphid (A. pomi) eggs survived the winter fairly well and are moderately abundant.

New Jersey. T. J. Headlee, R. C. Burdette, and D. F. Driggers (March): Apple aphids (A. pomi) are moderately abundant.

Delaware. L. A. Stearns (March 23): Fruit aphid eggs are moderately abundant over the State.

West Virginia. L. M. Peairs (March 24): Fruit aphid eggs are moderately abundant at Morgantown.

Georgia. C. H. Alden (March 19): Fruit aphid eggs are moderately abundant on trees at Cornelia.

Missouri. L. Haseman (March 21): Aphid eggs are less abundant than usual.

Mississippi. J. P. Kislanko (March 20): A. pomi is scarce at Hattiesburg. Stem mothers were observed on quince.

Oregon. D. C. Mote (March 24): Fruit aphids are out in great numbers - more numerous than normally in the Willamette Valley.

California. E. O. Essig (March 22): The green apple aphid, A. pomi, was present in apterous form all winter on Cotoneaster in the San Francisco Bay region. It is now abundant in many places.

APPLE LEAFHOPPERS (Cicadellidae)

New York. P. J. Parrott (March): Apple leafhopper: eggs on wood brought into the greenhouse are hatching.

Kansas. H. R. Bryson (March 20): A red and white leafhopper, Erythroneura sp., hibernated in large numbers in apple orchards at Troy.

SAN JOSE SCALE (Aspidiotus perniciosus Comst.)

Vermont. H. L. Bailey (March 28): There were very few living insects on bark received from a survey in the vicinity of Brattleboro, Windham County. The scale is found in only two or three localities in Vermont including the one mentioned.

Massachusetts. A. I. Bourne (March 28): Professor Whitcomb of Waltham made extensive counts on San Jose scale from orchards which had been subjected to varying degrees of temperature, with the following results: Orchards with minimum recorded temperature of -30° F., 89.3 percent of the scale was dead; -22° F., 75 percent dead; and -18° F., 70.1 percent dead.

- Connecticut. W. E. Britton (March 23): The San Jose scale is scarce; there has been heavy winter mortality.
- New York. P. J. Parrott (March): From 90 to 99 percent were killed by winter. R. E. Horsey (March 25): The San Jose scale has not been very common at Rochester and has been easily controlled. It is not considered a serious pest with us.
- South Carolina. W. C. Nettles (March 19): The San Jose scale is moderately abundant and giving trouble in Oconee County.
- Georgia. O. I. Snapp (March 17): Low temperatures during the winter have not killed many San Jose scales at Fort Valley. The average percentage of live scales on certain peach trees on February 17 was 82.2 and the average percentage alive on these trees on March 17 was 70.5.
- Florida. J. R. Watson (March 20): The San Jose scale is moderately abundant.
- Illinois. W. P. Flint (March 20): A survey during the fall of 1933 indicated that in peach and apple orchards moderate to severe infestations had increased from 6 percent in 1932 to 27 percent for 1933. Spring counts March 19 show 15 to 50 percent of the scale alive.
- Iowa. H. E. Jaques (March 24): The San Jose scale is moderately abundant. in southeastern Iowa.
- Missouri. L. Haseman (March 21): Recent counts on pear at Columbia show only 1.5 percent survival of the San Jose scale, with apparently considerable parasitization.
- Mississippi. C. Lyle (March 22): The San Jose scale has been reported from moderately to very abundant generally. Slight infestations were observed on spirea and honeysuckle at Greenwood in Leflore County and West in Holmes County during the past few weeks. Complaints of the occurrence of this species on these two plants are rarely received.
- Texas. F. L. Thomas (March 20): The San Jose scale was very abundant at Ft. Davis, Jeff Davis County, on March 10, on a few apple trees that had not been properly sprayed.
- California. M. L. Jones (March 16): Merced County reports the San Jose scale as causing medium damage to deciduous trees generally, and Tulare County reports the scale as moderately abundant on 5,000 acres of deciduous and citrus trees in February.

ROUND-HEADED APPLE TREE BORER (Saperda candida Fab.)

- South Carolina. W. C. Nettles (March 19): A severe infestation of the round-headed apple borer was observed in an apple orchard in Pickens County.

FRUIT TREE LEAF BEETLE (Syneta albida Lec.)

Oregon. B. G. Thompson and S. C. Jones (March 24): The Syneta beetle is beginning to appear in apple orchards at Monroe. The first larvae were found in a prune orchard near Forest Grove on March 14.

WESTERN APPLE CURCULIO (Tachypterellus quadrigibbus magnus List)

Kansas. H. R. Bryson (March 20): The apple curculio built up its population last summer and there have been no losses in hibernation.

EUROPEAN RED MITE (Paratetranychus pilosus C. & F.)

Massachusetts. A. I. Bourne (March 28): Eggs from orchards in Amherst where the temperatures ranged from -25 to -30° F. apparently were unaffected.

Connecticut. W. E. Britton (March 23): A majority of the eggs have survived the winter.

California. M. L. Jones (March 16): Santa Clara County reported the European red mite as causing moderate damage on 25,000 acres of prunes and cherries during February.

PEACH

ORIENTAL FRUIT MOTH (Grapholitha molesta Busck)

New York. P. J. Parrott (March): There has been about 75 percent mortality in most sections of western New York.

New Jersey. T. J. Headlee, R. C. Burdette, and B. F. Driggers (March): The oriental fruit moth is scarce.

Delaware. L. A. Stearns (March 23): No pupation of the oriental fruit moth, 40-50 percent mortality, March 15.

Georgia. C. H. Alden (March 19): No pupation noted to date at Cornelia.

Indiana. J. J. Davis (March 27): In most sections of the State peach buds have been completely killed and this probably will have a tendency to check the late brood.

Mississippi. C. Lyle (March 22): Peach twigs showing injury by larvae were received during the month from Quitman, Jackson, Humphreys and Attala Counties.

PEACH BORER (Aegeria exitiosa Say)

- Alabama. J. M. Robinson (March 20): The peach borer is moderately abundant at Auburn.
- Georgia. O. I. Snapp (March 21): Pupation of the spring brood has started at Fort Valley. As usual, the infestation is heavy in neglected orchards and those in which there are trees with injured areas.
- Mississippi. C. Lyle (March 22): The peach borer is reported as very abundant in parts of the State.
- Idaho. R. W. Haegele (March 20): The peach tree borer is damaging peaches in some orchards in Upper Payette Valley. (May be A. opalescens Edw. JAH)

PLUM CURCULIO (Conotrachelus nenuphar Hbst.)

- Georgia. O. I. Snapp (March 21): The first curculio of the season was caught at Fort Valley today by jarring peach trees that had begun to bloom. As usual the insect is appearing from hibernation at the time of the appearance of the first open peach blossoms, and as a result two broods of larvae are likely to occur. Emergence from hibernation is expected to be heavy during the next two weeks provided weather conditions are favorable.
- C. H. Alden (March 19): The plum curculio is hibernating; no beetles are out to date at Cornelia.

SHOT-HOLE BORER (Scolytus rugulosus Ratz.)

- Indiana. J. J. Davis (March 27): There has been a gradual increase apparently in some sections of the State, and with the severe winter which has weakened the stone fruit trees I anticipate a heavy outbreak of borers this spring and summer.
- Mississippi. J. Milton (March 19): A heavy infestation was noticed on a peach tree in Rankin County near Florence on March 14. This tree had been weakened by the San Jose scale.
- Idaho. R. W. Haegele (March 20): The shot-hole borer is present in prune trees, weakened by the peach tree borer, in the Upper Payette Valley.

SALMON FLY (Taeniopteryx nacificia Bks.)

- Idaho. R. W. Haegele (March 21): The salmon fly was found seriously injuring peach orchards in the Payette Valley. Blossom buds and blossoms were attacked, practically all blossoms being destroyed on some trees.

GREEN PEACH APHID (Myzus persicae Sulz.)

- Colorado. G. M. List (March 29): The green peach aphid promises to be somewhat more abundant in Mesa and Delta Counties than it has been for a number of years. Eggs began hatching the latter part of February and early in March.

CHERRY

PUTNAM'S SCALE (Aspidiotus ancylus Putn.)

Nebraska. M. H. Swenk (March 15): During the first week in March a Dodge County correspondent sent in specimens of bark of a cherry tree showing a heavy infestation and injury.

PLUM

PEAR THRIPS (Taeniothrips inconsequens Uzel.)

Oregon. S. C. Jones (March 24): Prune thrips began emerging during the last week in February. The peak of emergence was reached on March 12, when prune buds were in the white tip stage in the earlier sections, and late green tip stage of development in the later sections of the Willamette Valley. Eggs were observed on March 12 near Corvallis. First-instar larvae were found in prune orchard near Roseburg on March 21 and in an orchard near Forest Grove on March 22.

California. F. H. Wymore (March 21): Pear thrips are moderately abundant in prune and plum orchards in the coastal areas of Santa Clara, Napa, Colano, and Sonoma Counties. Emergence of adults began on January 30 and continued until the present, the peak being reached about March 4. The first nymphs were observed on March 8.

S. Lockwood (March 27): During the week of March 18-24, larvae were reported as very prevalent on pears and plums in orchards along the Sacramento River south of Sacramento.

DESTRUCTIVE PRUNE WORM (Mineola scitulella Hulst)

Idaho. R. W. Haegele (March 20): Overwintering larvae started to emerge during the first week in March. Infestations on prune are light to heavy.

RASPBERRY AND BLACKBERRY

ROSE SCALE (Aulacaspis rosae Bouche)

Ohio. E. W. Mendenhall (March 26): The rose scale is abundant in some raspberry and blackberry plantings in Fairfield County.

California. M. L. Jones (March 16): Kern County reports the rose scale as having caused slight damage locally to roses and blackberries during February.

GRAPE

GRAPE LEAFHOPPER (Erythroneura comes Say)

Nebraska. M. H. Swenk (March 15): A Kearney County correspondent, during the first week in March, reported the finding of many hibernating specimens of the grape leafhopper while cleaning out the dead leaves from among a lilac hedge near where this pest had defoliated his woodbine last summer.

Arizona. C. D. Lebert (March 12): These leafhoppers are very numerous on about 5 acres of blackberries adjacent to vineyards in Phoenix where they were destructive last season.

California. S. Lockwood (March 24): The grape leafhopper is now found in great numbers in the San Joaquin and Imperial Valleys. Indications are that infestations will be severe and the losses tremendous unless methods of fighting this insect are more effective than they have been heretofore.

CITRUS

PURPLE SCALE (Lepidosaphes beckii Newm.)

Florida. J. R. Watson (March 20): The purple scale is moderately abundant generally.

Mississippi. H. Gladney (March 16): The purple scale is moderately abundant on citrus at Ocean Springs.

California. M. L. Jones (March 16): Santa Barbara County reported the purple scale as abundant on citrus locally during February.

COTTONY-CUSHION SCALE (Icerya purchasi Mask.)

Florida. E. W. Berger and G. B. Merrill (March 20): The cottony cushion scale is moderately abundant here and there over most of the State. The principal hosts are citrus and pittosporum. Rodolia cardinalis Muls. is being supplied by the Entomological Department of the State Plant Board.

Mississippi. J. P. Kislanko (March 20): The cottony-cushion scale is quite abundant on pecans and pittosporum, killing some pittosporum shrubs at Hattiesburg. R. cardinalis is multiplying rapidly and a check on further injury by the scale is anticipated.

California. M. L. Jones (March 16): Tulare and Kern Counties report the cottony-cushion scale as moderately abundant locally on citrus and ornamentals, for February.

GREEN CITRUS APHID (Anhis spiraeicola Patch)

Florida. J. R. Watson (March 20): Unusually scarce. The winter has been too dry for growth on young trees.

COWPEA APHID (Aphis medicaginis Koch)

Arizona. C. D. Lebert (March 21): The bur clover aphid is moderately abundant on citrus and ivy at Phoenix.

CITRUS RUST MITE (Phyllocoptes oleivorus Ashm.)

Florida. J. R. Watson (March 20): Owing to recent rain the rust mite is not so abundant as in January, but still unusually abundant for March.

Texas. F. L. Thomas (March 20): S. W. Clark reported on February 10 that P. oleivorus was extremely abundant on citrus owing to the mild winter. Control measures were being practiced. The citrus rust mite is moderately abundant in Hidalgo County.

CITRUS RED SPIDER (Paratetranychus citri McG.)

California. M. L. Jones (March 16): Santa Barbara County reported the citrus red spider as having caused severe damage on 28 acres of citrus locally during February.

GUAVA

CARDIN'S WHITEFLY (Aleurodicus cardini Back)

Florida. E. W. Berger & G. B. Merrill (March 20): The Cardin's whitefly is moderately abundant, and generally present where guavas grow.

PYRIFORM SCALE (Protopulvinaria pyriformis Ckll.)

Florida. E. W. Berger & G. B. Merrill (March 20): The ~~pyriform~~ scale is generally present where avocados and guavas are growing. It also occurs on Cape Jasmine and English ivy in northern Florida.

TRUCK - CROP INSECTS

VEGETABLE WEEVIL (Listroderes obliquus Gyll.)

- Alabama. J. M. Robinson (March 20): Vegetable weevils are moderately abundant at Auburn. Adults have been emerging for three weeks and the larvae have been abundant since December on turnips, lettuce, and other tender vegetables.
- Mississippi. C. Lyle (March 22): A correspondent at Phoenix, Yazoo County, reported on February 23 that larvae had severely injured turnips in his garden. Complaints of damage to various garden crops have also been received from other sections of the State.
- California. M. L. Jones (March 21): A small infestation has been found in Sacramento County about 4 miles south of Sacramento on the east side of the Sacramento River. The infestation is confined to 5 acres of turnips and spinach and is the first positive record of this insect in the Great Valley.

SPOTTED CUCUMBER BEETLE (Diabrotica duodecimpunctata Fab.)

- Florida. J. R. Watson (March 20): The spotted cucumber beetle is very abundant on corn.
- Alabama. J. M. Robinson (March 20): The spotted cucumber beetle is moderately abundant at Auburn on winter legumes.
- Texas. F. L. Thomas (March 20): The spotted cucumber beetle was moderately abundant at Dickinson, Galveston County, on March 5. J. N. Roney took 46 of these insects in 100 sweeps of a net. The beetles were feeding on spinach.

WESTERN STRIPED CUCUMBER BEETLE (Diabrotica trivittata Mann.)

- California. F. H. Wymore (March 21): The striped cucumber beetle has been quite active during the past three weeks in the vicinity of Davis and some feeding is apparent on volunteer cucurbits.

WESTERN SPOTTED CUCUMBER BEETLE (Diabrotica soror Lec.)

- Oregon. B. G. Thompson (March 24): D. soror is laying eggs in bean fields near Harrisburg.
- California. F. H. Wymore (March 21): The spotted cucumber beetles have been quite active about the gardens in this section of the State for the past month. Injury to winter spinach in the San Jose area was quite apparent.

SEED CORN MAGGOT (Hylemyia cilicrura Rond.)

- Virginia. H. G. Walker (March 26): The seed corn maggot adults are moderately abundant at Norfolk.

California. F. H. Wymore (March 21): The seed corn maggot is doing considerable damage to young tomato plants in the cold frames about Davis. As high as 25 percent of the plants have been destroyed in some of the beds. Cucurbits were rather severely damaged in the Coachella and Imperial Valleys the latter part of February and the first part of March.

SOUTHERN GREEN STINK BUG (Nezara viridula L.)

Florida. J. R. Watson (March 20): The Southern green stink bug emerged from hibernation in large numbers during the first week in March.

FALSE CHINCH BUG (Nysius ericae Schill.)

Texas. F. L. Thomas (March 20): S. W. Clark reports that N. ericae has caused severe damage in one turnip field, and that it was also abundant on cabbage but causing no noticeable damage.

A SPITTLE BUG (Aphrophora permutata Uhl.)

Oregon. D. C. Mite (March 24): W. D. Edwards reports that spittle bugs were first seen on March 7 and are still hatching.

NORTHERN MOLE CRICKET (Gryllotalpa hexadactyla Perty)

Nebraska. M. H. Swenk (February 15 - March 15): A correspondent at Leigh, Colfax County, on February 23, sent in a specimen of the common mole cricket which he had found, along with a number of others, at a depth of about 6 feet in the ground.

BEANS

MEXICAN BEAN BEETLE (Epilachna corrupta Muls.)

New Jersey. T. J. Hoadlee, R. C. Burdette, B. F. Driggers (March): The Mexican bean beetle has suffered heavy mortality in the bean fields where hibernating under bean leaves, crab grass, and trash. No check has been made in wooded areas.

West Virginia. L. M. Peairs (March 24): The Mexican bean beetle has been reported at Morgantown and several hibernating adults have been collected, all alive.

Ohio. N. F. Howard (March 27): At present the survival is lower than last year but is still relatively high and considerably higher than the general average for the Ohio Valley region.

BANDED CUCUMBER BEETLE (Diabrotica balteata Lec.)

Florida. J. R. Watson (March 20): D. balteata are very abundant on beans in Dade County.

CABBAGE

IMPORTED CABBAGE WORM (Ascia rapae L.)

Virginia. H. G. Walker (March 26): A report of a cabbage butterfly flying around March 26, was received.

South Carolina. F. Sherman (March 19): The cabbage butterfly was observed in flight at Clemson College, March 18; first seen in 1934.

Louisiana. W. E. Hinds (March 26): Eggs have been unusually scarce during March. The adults have been rather scarce and rains seem to have washed off many of their eggs.

Missouri. L. Haseman (March 21): I have not seen any butterflies on the wing this month at Columbia.

DIAMOND-BACK MOTH (Plutella maculipennis Curt.)

Virginia. H. G. Walker (March 26): There are a few moths present in kale fields at Norfolk, but a hymenopterous parasite is also present which will tend to keep them under control.

CABBAGE LOOPER (Autographa brassicae Riley)

Texas. F. L. Thomas (March 20): S. W. Clark reports that A. brassicae is becoming abundant on late cabbage at Weslaco.

CABBAGE APHID (Brevicoryne brassicae L.)

Mississippi. G. L. Bond (March 17): The cabbage aphids are moderately abundant at Pecan, Jackson County. Cabbages are found to be turning yellow due to aphids on their roots; the aphids are not very numerous on the tops.

J. Milton (March 19): On March 17th a heavy infestation of plant lice was observed on a few cabbage plants in a 2-acre field near Magee, Simpson County. The infested plants were seriously injured.

HARLEQUIN BUG (Murgantia histrionica Hahn)

New Jersey. T. J. Headlee, R. C. Burdette, B. F. Driggers (March): The harlequin cabbage bug suffered heavy mortality; all that remained in fields were killed off.

Mississippi. N. D. Peets (March 19): The harlequin bug is moderately abundant in southwestern Mississippi.

Louisiana. W. E. Hinds (March 26): The harlequin cabbage bugs, in all stages, have been very abundant on Chinese cabbage at Baton Rouge.

SQUASH

SQUASH BUG (Anasa tristis DeG.)

California. F. H. Wymore (March 21): Squash bugs have been rather active around Davis, Yolo County, for the past two weeks.

STRIPED CUCUMBER BEETLE (Diabrotica vittata Fab.)

Florida. J. R. Watson (March 20): The striped cucumber beetle is very abundant on squash in Dade County.

TURNIP

TURNIP APHID (Rhopalosiphum pseudobrassicae Davis)

South Carolina. W. C. Nettles (March 19): The false cabbage aphid is present in numbers in the eastern trucking district, near Charleston.

Mississippi. H. Gladney (March 16): Turnip aphids are moderately abundant at Ocean Springs, Jackson County.

ONIONS

ONION THRIPS (Thrips tabaci Lind.)

Florida. J. R. Watson (March 20): During the first part of March the onion thrips appeared in considerable numbers about Gainesville for the first time this winter.

Texas. F. L. Thomas (March 12): T. tabaci are abundant on cabbage at Weslaco.

SWEETPOTATO

AN EAR WIG (Forficulidae)

Mississippi. G. L. Bond (March 17): Earwigs have been found feeding on sweetpotatoes where they were banked in the field or in sheds. This is quite common in all sections of Jackson County east of the Pascagoula River.

STRAWBERRY

STRAWBERRY LEAF ROLLER (Ancylis comotana Froel.)

Kansas. H. R. Bryson (March 16): The strawberry leaf roller is reported as very abundant in hibernation at Troy.

Oregon. W. D. Edwards. (March 24): Found larva in strawberry leaf near Corvallis.

A TORTRICID (Ablabia longana Haw.)

Oregon. D. C. Mote (March 24): Overwintering larvae of Cnephasia longana are emerging from winter quarters and beginning to feed.

A ROOT WEEVIL (Dyslobus sp.)

Oregon. K. W. Gray (March 24): Adults of strawberry root weevils are out and feeding.

STRAWBERRY ROOT APHID (Aphis forbesi Weed)

Virginia. H. G. Walker (March 26): Examination of strawberry fields in Princess Anne County have shown that practically all of the overwintering strawberry root louse eggs have hatched.

BEETS

BEET LEAFHOPPER (Eutettix tenellus Bal.)

Utah. G. F. Knowlton (March 16): Beet leafhoppers survived the winter in considerable numbers on some Tooele and Box Elder County breeding areas. Males survived at Flux and Tirpale, which is unusual for this area but probably due to the unusually mild winter.

Utah and Arizona. E. W. Davis, Monthly Letter Bur. Ent., No. 237 (February): On a trip through the perennial breeding area in Utah and Arizona I found host-plant conditions favorable for a heavy population of E. tenellus in 1934. Throughout the area alfilaria, an important host of the beet leafhopper, was growing thickly over most of the area below the 3,000-foot level. Counts showed approximately one leafhopper every $2\frac{1}{2}$ feet. All females collected were full of mature eggs. In localities where alfilaria had not germinated, E. tenellus was collected on Covillea, another important host. In the Nevada area no Plantago or alfilaria was found to have germinated. Eriogonum was germinated in a very limited area. In this area only one specimen, a female, was taken on Covillea.

F O R E S T A N D S H A D E T R E E I N S E C T S *

FALL CANKER WORM (Alsophila pometaria Harr.)

Connecticut. E. P. Felt (March 24): Eggs have survived the intense cold through December and January, apparently unhurt.

Kansas. H. R. Bryson (March 20): The first female was taken on January 1, and the first male was taken January 2, following the very mild November and December. The emergence continued until the peak was reached about January 17, when 143 females were taken on one tree. The last female was observed on February 20.

California. F. H. Wymore (March 21): The fall canker worm is fairly common in many orchards in Solano and Sonoma Counties.

SPRING CANKER WORM (Paleacrita vernata Peck)

Kansas. H. R. Bryson (March 20): The mild winter favored an early emergence. The first female was observed on January 11 and the first male was taken on January 16. The emergence continued until the peak was reached on

*Correction: The note in Insect Pest Survey Bulletin, March 1934, page 19 on brown-tail moth (Hymia phaeorrhoea Don.) by H. G. Walker in Virginia should be H. L. Bailey in Vermont.

March 3, when 506 females were taken on one tree. The fact that the emergence continued over such a long period made it difficult to maintain sticky bands at Manhattan; hence, many of the females no doubt have escaped being caught. The emergence continues at this writing and is the heaviest for many years.

Missouri. L. Haseman (March 21): A spring canker worm male moth was observed flying late in February and again March 20 at Columbia.

WHITE-MARKED TUSSOCK MOTH (Hemerocampa leucostigma S. & A.)

Massachusetts. A. I. Bourne (March 28): Egg masses of the white-marked tussock moth from orchards at Amherst, where temperatures ranged as low as from -20 to -30° F., are hatching apparently normally.

FOREST TENT CATERPILLAR (Malacosoma disstria Hbn.)

Colorado. G. M. List (March 29): The forest tent caterpillar promises to be from moderately to quite abundant in a number of towns throughout northeastern Colorado. The eggs have not yet begun to hatch.

ASH

ASH BORER (Podosesia fraxini Lugger)

North Dakota. J. A. Munro (March 19): Specimens were received, March 16, from Haynes, Adams County. They were destroying ash trees.

BEECH

BEECH SCALE (Cryptococcus fagi Baer.)

New England. Bureau of Entomology (March 2): The past season has seen tremendous increases in the known distribution of the beech scale in the New England States. It is followed by a Nectria disease which may or may not be the actual killing agent. It is present in Maine, New Hampshire, and Massachusetts, but thus far killing of the trees has been confined to Maine and the Maritime Provinces of Canada.

ELM

EUROPEAN ELM SCALE (Gossyparia spuria Mod.)

Illinois. W. P. Flint (March 20): Mr. P. A. Glenn reports that during February the European elm scale was found generally and well established in Lake, Cook, and DuPage Counties, the eastern tier of townships in Kane County, the entire City of Springfield and some adjacent woodlands, and in the western half of the City of Champaign.

California. M. L. Jones (March 16): Napa County reports the European elm scale as causing slight damage locally on a few Chinese elms, during February. Madera County reports the European elm scale as present during February.

CLOVER MITE (Bryobia praetiosa Koch)

New Hampshire. E. P. Felt (March 24): Eggs were extraordinarily abundant upon elms at Hanover, and apparently eggs and young mites have not been killed to any appreciable extent by the low temperatures.

PINE

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana Schiff.)

Massachusetts. P. A. Berry, Monthly Letter Bur. Ent., No. 237 (February): One hundred larvae were removed from infested shoots of pine collected in each locality of Wakefield and Brookline, and were examined to ascertain if they were living or dead. In each collection only 1 of the 100 larvae examined was alive. It is presumed that the death of the larvae was due to the unusually low temperatures of the latter part of December. Two of the larvae from Wakefield and 7 from Brookline contained the immature stage of a parasite of the genus Orgilus, all dead. Adults of O. obscurator (Nees), a parasite received from Europe, had been liberated in each of the infestations from which the European pine shoot moth larvae were obtained and it was probably this species that was found in the parasitized larvae.

Connecticut. W. E. Britton (March 23): From 80 to 90 percent of the larvae in the shoots have been killed during the winter. Red, Scotch and mugho pines in south-central Connecticut are attacked.

PINE TUBE MOTH (Eulia pinatubana Kearf.)

New York. E. P. Felt (March 24): The pine tube moth has been reported as locally abundant at Locust Valley, L. I.

MOUNTAIN PINE BEETLE (Dendroctonus monticolae Hopk.)

Idaho. J. C. Evenden, Monthly Letter Bur. Ent., No. 237 (February): In 1927 a small outbreak was reported from the eastern portion of the Nezperce National Forest. This outbreak was apparently a chance infestation from the severe epidemic that existed in the lodgepole pine stands of the Bitterroot and Salmon Forests. Since that date the infestation has spread northward, devastating all lodgepole pine stands in its path. An analysis of the 1933 ranger reports shows that this epidemic has passed through the Nezperce and Selway Forests, and now rests in the Clearwater, with a few spots of infestation on the St. Joe Forest. Although it is accepted that the remaining lodgepole pine stands within these forests are doomed, the seriousness of the situation rests upon the possibility that the insect may transfer its attack to white pine after depleting the lodgepole pine stands. As these tree species are equally acceptable hosts of the insect, and as white pine in association with lodgepole is already being attacked on the Clearwater, there is but small hope that such an occurrence will not take place. There are large bodies of valuable western white pine on the Clearwater and St. Joe National Forests which at this time are seriously threatened.

WHITE PINE APHID (Lachnus strobi Fitch)

New York. E. P. Felt (March 24): The black eggs were sent in in numbers from pines at Locust Valley and also Westbury, L. I.

PINE NEEDLE SCALE (Chionaspis pinifoliae Fitch)

Massachusetts. A. I. Bourne (March 28): The species of scale which winter over in the egg stage, such as the pine leaf scale, from such observations as have been made at Amherst appear to have wintered very successfully.

New York. R. E. Horsey (March 25): The pine leaf scale was observed on an ornamental planting of Scotch and Austrian pines. Infestation was quite severe on the Scotch pine. The purplish eggs appear plump and healthy when removed from under the scales. The pine leaf scale is about eliminated from Highland Park.

Nebraska. M. H. Swenk (February 15 - March 15): A Hall County correspondent, during the first week in March, reported that her ~~maple~~ pine showed an infestation by the pine leaf scale.

POPLAR

CALIFORNIA TENT CATERPILLAR (Malacosoma californica Pack.)

Arizona. C. D. Lebert (March 21): Very abundant on cottonwood trees around Phoenix. Webbing is noticeable on all roadways where cottonwoods are planted. Very annoying in homes in which the caterpillars gain access in their migrations.

WILLOW

WESTERN WILLOW TINGID (Corythucha salicata Gibson)

Oregon. B. G. Thompson (March 24): The western willow tingid is showing up in serious numbers in sections of the Willamette Valley.

I N S E C T S A F F E C T I N G G R E E N H O U S E

A N D O R N A M E N T A L P L A N T S

TWO-MARKED TREE HOPPER (Enchenopa binotata Say)

New York. E. P. Felt (March 24): Egg masses were found somewhat abundant upon Celastrus or Roxbury waxwort at Westbury, L. I.

MEALYBUGS (Pseudococcus spp.)

North Dakota. J. A. Munro (March 19): A report of serious injury to house plants was received from Sheyenne, Eddy County, March 16.

Nebraska. M. H. Swenk (February 15 - March 15): Complaints continued to be received during the period here covered of infestation of house plants with the mealy bug P. citri Risso.

Mississippi. D. W. Grimes (March 20): Common mealybugs (P. citri) are abundant on Euonymus japonica at Kosciusko.

SOFT SCALE (Coccus hesperidum L.)

Nebraska. M. H. Swenk (March 15): From Dundy County, during the first week in March, we received a complaint from a correspondent that their indoor lemon plant was being destroyed by the soft brown scale, and the following week a Hayes County correspondent reported serious injury to her begonia plants by this pest.

A COCCID (Lepidosaphes tuberculata Malen.)

Florida. E. W. Berger & G. B. Merrill (March 20): L. tuberculata is moderately abundant on orchids in a greenhouse at West Palm Beach. Previously reported from Coconut Grove. Specimens collected.

ARBORVITAE

ARBORVITAE APHID (Dilachnus thujaefilina Del G.)

Mississippi. C. Lyle assistants (March 19): Arborvitae is being heavily infested at Laurel. The aphid was found to be very abundant on arborvitae in Smith County, near Pineville School, on February 23.

Louisiana. W. E. Hinds (March 26): An aphid common on arborvitae has attracted blowflies to the honeydew excretions as a source of food at Tallulah and Baton Rouge.

AZALEA

AZALEA LEAF MINER (Gracilaria azaleae Brants)

Mississippi. C. Lyle (February 24): Mr. J. P. Kislanko sent us some adults, larvae, and pupae taken from azalea in a greenhouse at Hattiesburg, on February 21. These insects were abundant in the greenhouse; and the azalea plants appeared shabby owing to defoliation. (Det. by A. Busck)

EUONYMUS

EUONYMOUS SCALE (Chionaspis euonymi Comst.)

Connecticut. W. E. Britton (March 23): Evidence of heavy winter mortality of C. euonymi Comst.

New York. R. E. Horsey (March 25): The Euonymus scale is quite prevalent in Rochester on Euonymus radicans and its varieties as well as on some deciduous species of Euonymus. The severe winter has badly injured leaves on exposed plants of E. radicans, and eggs examined are apparently yellowed and wrinkled although a few apparently live ones were found.

Unfortunately I cannot tell whether the condition was caused by the unusually cold winter or by spraying, as these were treated several times last summer and late in the year.

Mississippi. J. Milton (March 19): The *Euonymus* scale is very abundant on *Euonymus* in Jackson.

GLADIOLUS

GLADIOLUS THRIPS (*Taeniothrips gladioli* M. & S.)

Florida. J. R. Watson (March 20): The "glad" thrips caused much damage to plantations in Lee County and about Sanford and to a lesser extent about Winter Haven, Polk County.

LATANIA SCALE (*Aspidiotus lataniae* Sign.)

California. S. Lockwood (March 24): Dr. Dean Palmer, San Diego County, found the latania scale living on gladiolus corms 4 inches below the surface of the soil.

LILAC

OYSTER-SHELL SCALE (*Lepidosaphes ulmi* L.)

New York. R. E. Horsey (March 25): The oyster-shell scale is found on ornamental lilacs and on white ash in native woods. Microscopic examination shows that the eggs are plump and whitish and apparently will hatch abundantly. This scale is almost eliminated from Highland Park.

MAGNOLIA

TULIP TREE SCALE (*Toumeyella liriodendri* Gmel.)

Mississippi. C. Lyle (March 22): Magnolia twigs heavily infested were received from Mount Olive, Covington County, on March 7.

NARCISSUS

A BULB THRIPS (*Liothrips vaneeckei* Friessner)

Washington. R. Schopp (February 26): The first eggs known to have been laid in the field this season were found February 26 at Sumner. No pupae have been found this season. Large numbers of parasitic mites have been appearing in the cultures in the laboratory during the winter and spring.

NARCISSUS BULB FLY (*Merodon equestris* Fab.)

Washington. C. H. Martin (February): On February 16 larvae were out of the bulbs and at the surface of the soil in an outdoor cage at Sumner. The larvae in this cage had been removed and replaced in bulbs during November, December, and January. On February 17 several pupae were found

over a lot of undisturbed larvae. Examination of larvae in the second spring of their existence showed them to be in good condition in spite of the fact that they had been under flood waters and also in water-saturated soil for several weeks. Twenty five, 15, and 16 mm larvae were removed from bulbs last August and placed in soil. Six of these larvae were still alive on February 15; apparently the rest had died.

PALM

PALMETTO SCALE (Comstockiella sabalis Comst.)

Florida. E. W. Berger & G. B. Merrill (March 20): The palmetto scale is moderately abundant. Occasionally present on cabbage palmetto and some other palms, wherever grown.

PALM LEAF SKELETONIZER (Homaledra sabalella Chamb.)

Florida. E. W. Berger & G. B. Merrill (March 20): The palm leaf skeletonizer is moderately abundant. Frequently present on cabbage palmetto and some other palms wherever grown.

RHODODENDRON

A WHITEFLY (Aleyrodes prunosus Bemis)

Washington. M. H. Hatch (February 15): A white fly is attacking cultivated rhododendron at Seattle. Individuals are not very abundant. (Det. P. W. Mason)

ROSE

SMALL GREEN ROSE APHID (Myzaphis rosarum Walk.)

California. M. L. Jones (March 16): Napa County reports the small green rose aphid as having caused medium damage generally to roses during February.

I N S E C T S A T T A C K I N G M A N A N D

D O M E S T I C A N I M A L S

MAN

MOSQUITOES (Culicinae)

Utah. G. F. Knowlton (March 17): Mosquito larvae are nearly mature in some localities and a few adults, principally Anopheles, have been collected during the past two weeks.

FLEAS (Ctenocephalides spp.)

Missouri. L. Haseman (March 21): Farmers from different parts of the State are complaining of early flea activity.

Nebraska. M. H. Swenk (March 15): Complaints of infestation with fleas, presumably C. canis Curt, were received from Buffalo, Cuming, and Richardson Counties during the last half of February, as a continuation of the complaints received in mid-February.

BOXELDER BUG (Leptocoris trivittatus Say)

South Carolina. F. Sherman (March 19): Boxelder bugs were reported active March 9 in the central part of the State, invading a house.

North Dakota. J. A. Munro (March 19): An unusual number of reports have been received on the prevalence of boxelder bugs during the past season. Throughout the winter months reports indicated that they were regarded chiefly as a household pest.

California. F. H. Wymore (March 21): The boxelder bug has been quite active during the past month in the Vacaville and Fairfield districts of Solano County. No damage from feeding has been reported.

CATTLE

CATTLE GRUBS (Hypoderma spp.)

North Dakota. J. A. Munro (March 17): I have received from F. D. Butcher a note dated today on cattle grub infestation at Orrin. He states that the grubs are nearly ready to drop out.

Missouri. L. Haseman (March 21): Ox warbles have been much less abundant than usual at Columbia; some are still in the backs of hosts.

HORSES

HORSE BOTFLIES (Gastrophilus spp.)

North Dakota. J. A. Munro (March 21): Horse bots have attracted considerable attention during the winter and early spring months in the northern and eastern parts of the State. (Abstract, J. A. H.)

Missouri. L. Haseman (March 21): Horse bots are about normal as regards abundance locally (Columbia).

A TICK (Dermacentor sp.)

North Dakota. J. A. Munro (March 19): A veterinarian sent numerous specimens of ticks, Dermacentor sp. (both sexes) with an accompanying note as follows: "The ticks were taken from horses about 18 miles south of Cartwright, McKenzie County, and the horses are 10 miles from the closest timber. They are causing considerable trouble among horses for a distance of 50 miles up the Little Missouri River from Chaloner bridge, south of Watford City.

POULTRY

BEDBUGS (Cimex lectularius L.)

Ohio. N. F. Howard (March 28): A severe infestation of bedbugs in chicken coops at South Point was recently brought to our attention. The insects became so numerous that it was necessary to remove the chickens and completely sterilize the house. In one instance the bugs were so numerous that the farmer had to dispose of all his chickens but a few which he isolated and treated by hand. The identity of the species has not been verified by a specialist. I understand that there was a heavy infestation in the small-animal house where experimental rats and other small animals are kept at Ohio State University.

HOUSEHOLD AND STORED-PRODUCTS INSECTS

TERMITES (Reticulitermes spp.)

Connecticut. M. P. Zappe (March 23): Termites are becoming more destructive to buildings. R. flavipes Koll. was reported attacking buildings at New Haven and Westport. Several years ago this was rather rare but during the last 3 years we have many reports of injury by this pest to homes and public buildings. On Prospect Street, New Haven, many new expensive homes are infested. Several years ago this land was covered with wood but has recently been developed into building sites.

West Virginia. L. M. Peairs (March 24): Termites reported at Morgantown, Fairmont, and Parkersburg. No less than 11 reports of adult emergence during week of March 10 - 17.

Mississippi. C. Lyle (March 22): Requests for information about controlling termites have been received during the past few weeks from almost all sections of the State.

Kansas. H. R. Bryson (March 20): Owing to the mild winter, termite activity continued throughout the winter months. Many new local infestations have been found. Apparently four species of subterranean termites are present in Kansas.

Utah. G. F. Knowlton (February 28): Termites (R. tumiceps Eks.) are seriously damaging electric light poles in various parts of the Cache Valley, untreated lodgepole and other native pine poles being damaged most severely. Company representatives report that untreated poles are sometimes severely mined and destroyed within three years. (Det. T. E. Snyder)

California. F. H. Wymore (March 21): The western or subterranean termite, R. hesperus Eks. has been actively preparing the emergence tubes in buildings and greenhouses during the past two weeks for the spring flight; however, no swarming has been observed or reported as yet.

EUROPEAN EARWIG (Forficula auricularia L.)

California. A. E. Michelbacher (March 21): As late as February 24 eggs could be found at Berkeley without any difficulty.

INDIAN-MEAL MOTH (Plodia interpunctella Hbn.)

Nebraska. M. H. Swenk (March 15): From Stanton County comes the report of large numbers of Indian-meal moths emerging from poorly shelled corn cobs stored in the cellar of a house during the first week in March.

BEAN WEEVIL (Acanthoscelides obtectus Say)

Mississippi. C. Lyle (March '22): Shelled butterbeans showing severe injury were received from Durant, Holmes County, on March 8.

PEA WEEVIL (Bruchus pisorum L.)

Idaho. T. A. Brindley, Monthly Letter Bur. Ent., No. 237 (February): Prospects are favorable for a decided increase in pea weevil damage this season. If the weather continues mild the only redeeming feature of the situation will be the small hibernating population. An interesting result of the continued mild weather is the survival of volunteer peas in the winter wheat. Last fall during the harvest season unusual quantities of peas were shattered because of climatic conditions. Whole fields seeded to winter wheat resembled pea fields, so great was the quantity shattered. Favorable climatic conditions allowed practically all of these peas to germinate and, thus far, these peas have survived. It is possible, should the warm weather continue, that these peas will survive and absorb some of the weevil damage. This would alleviate the situation this crop season, but would breed large pea weevil populations for 1933.

A SPIDER BEETLE (Ptinus tectus Boieldieu)

Washington. M. H. Hatch (February 23): This beetle is numerous in a grain store at Edmonds.

A NOTE FROM HAITI - By G. N. Wolcott

COTTON LEAF WORM (Alabama argillacea Hbn.)

March 8, 1934: I have just received word from Mr. Andre Audant of Port-au-Prince, Haiti, that he has been observing successive generations of Alabama argillacea Hbn. there on cotton this winter, the pupal periods coming the latter part of January and the latter part of February. He does not note what the temperatures have been, but these will be obtainable later. By contrast, no Alabama at all has been noted in Puerto Rico for over a year, the last small outbreak having been eliminated in January 1933 on a small field of an experimental planting at Rio Piedras. It occurs to me that the presence of A. argillacea in Haiti throughout the winter may indicate the possibility of an early occurrence in Florida and Georgia next spring.

INSECT PEST SURVEY BULLETIN

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THE MORE IMPORTANT RECORDS FOR APRIL, 1934

In the Great Plains region, where the intensive grasshopper control campaign is being centralized, no reports of hatching of the important economic species were received during April. In certain limited areas of North Dakota where the soil is light and sandy, as high as 25 percent of the eggs were destroyed, apparently by drying. Other than this, conditions throughout the infested region have been favorable for grasshoppers. Eggs were hatching in Montana during the last week of this month. In the Southwest there was a localized serious outbreak in the Salt River Valley of Arizona, involving about 85,000 acres, and some damage was observed in alfalfa and in young citrus plantings about the middle of April. In Idaho the two-striped grasshopper began hatching during the second week in April at Emmett, Gem County; in other parts of the State no hatching of any of the economic species had occurred up to the last week in the month. Eggs of the clear-winged grasshopper were as numerous as 8,000 per square foot of sod in Caribou County.

The army cutworm was appearing in numbers in wheat and alfalfa fields in southern Nebraska, central Montana, and the eastern half of Colorado. Considerable damage was done in a number of localities. Reports of cutworm injury have also been received from many points in Kansas. The pale western cutworm was very abundant and seriously damaging fall wheat in Utah.

The chinch bug situation has not materially changed since our last report. Heavy flights from hibernation quarters occurred during the first and second weeks of April in Kansas and Missouri.

May beetles were reported as damaging pecan buds and foliage in Georgia and Mississippi. Brood C adults were being found in large numbers near the surface of the soil in Wisconsin, and heavy flights occurred in Texas during the first week of the month.

The green bug was attracting considerable attention by its depredations on wheat and barley in southern Missouri, throughout the wheat-growing sections of Kansas, southwestern Nebraska, north-central Oklahoma,

and the eastern half of Colorado. Considerable damage was reported from some sections.

Grain aphids, Rhopalosiphum prunifoliae Fitch and Macrosiphum granarium Kby., were very numerous in southwestern Washington and the Willamette Valley of Oregon.

Corn ear worms were appearing in corn during the last week of the month in Southern Florida and in the southeastern corner of Texas.

The pea aphid was attacking alfalfa and English peas over a very wide territory, extending from Indiana through Missouri and Nebraska to Colorado, and southward to the Gulf. In Kansas the outbreak was probably the most widespread and injurious of any since the outbreaks of 1921, the damage being particularly severe in the northeastern part of the State. In the West this insect was doing very considerable damage to alfalfa in northern Utah and in the valleys of western Nevada. Austrian winter field peas are seriously damaged in the Willamette Valley of Oregon, and heavy infestations of vetch were reported from western Washington.

Pupation of overwintering larvae of the codling moth started during the second week of April in southern Delaware. During the third week of the month pupation was observed in central Maryland. First adult moths were caught in bait traps at Cornelia, Ga., on April 14. In Ohio practically half of the larvae had pupated by April 12. In Illinois pupation started in the southern part of the State during the first week in April but no pupation had been observed as far north as Urbana up to April 20. In the Pacific Northwest emergence started in Idaho and Washington on April 12, which is extremely early. The first adult in Idaho last year was recorded on May 24.

The eastern tent caterpillar was reported as generally prevalent in the New England, Middle Atlantic, and South Atlantic States, extending westward into Tennessee and Mississippi. The infestation in Tennessee is the heaviest that has been observed in that State during the past five years.

The apple aphid and the apple grain aphid began hatching in the New England States about the middle of April. They appeared to be generally prevalent throughout the New England, and northern Middle Atlantic States, and comparatively scarce in the South Atlantic and lower Mississippi Valley States. The worst infestation of the woolly apple aphid that has occurred for many years was reported from the Willamette Valley of Oregon and from Idaho.

The first emergence of the plum curculio was observed during the third week in April in Delaware. It appeared in numbers in Georgia during the first few days of April and was generally distributed in the orchards by the 10th, eggs were found in the fruit on the 18th, and the first larvae were found in peaches on the 24th. In South Carolina the first adults were observed on April 2.

Adults of the striped cucumber beetle were found hibernating in considerable numbers in a dry, open hillside woodlot in Maryland.

A serious outbreak of buffalo gnats was under way during the latter part of the month in Arkansas. Hundreds of heads of livestock were reported killed.

GENERAL FEEDERS

GRASSHOPPERS (Acrididae)

- North Dakota. J. A. Munro (April 21): As high as 25 percent mortality of overwintered eggs has been found in light sandy soils in severe drought-stricken areas of the State, while in the heavier types of soil the mortality is very low. Apparently the mortality is due to desiccation of the eggs in abnormally dry soil.
- Mississippi. K. L. Cockerham (April 16): On April 16 a report was received at this office that a serious outbreak had occurred on two truck farms 4 miles north of Biloxi. An investigation showed nymphs quite numerous in grassland around the edges of the truck field and serious damage to tomato plants set in the fields near the grassland. Poisoned bait was applied on these truck farms in an effort to prevent further serious injury. Although the specimens have not been identified, they are believed to be nymphs of Schistocerca americana Drury.
- Nebraska. M. H. Swenk (April 15): A threat of more or less damage at this time involves two or three principal areas in the State. As during the past three seasons, the most serious threat lies in north-central Nebraska, along the Niobrara River and the South Dakota boundary. This area includes the northeastern corner of Cherry County from Crookston east, all of Keyapaha and Boyd Counties, the northern sections of Brown and Rock Counties near the Niobrara, about the northern half of Holt County, all of Knox County, and the northern part of Cedar County. In portions of this area grasshoppers were very injurious last year and eggs are now present in numbers as high as 25 eggs to the square foot. Next to this north-central area, an area in Keith and Deuel Counties and western Perkins County seems to hold the threat of most serious injury. A third district where the threat seems less severe includes southeastern Rock County, with major sections of Loup, Garfield, Wheeler, and surrounding counties.
- Arizona. C. D. Lebert (April 18): Scouting records to April 10 show the infestations of Melanoplus mexicanus Sauss. in the Salt River Valley to be as follows: 85,000 acres, light infestations; 10,000 acres, medium infestations; and 1,500 acres, heavy infestations. Winged adults were noticed April 6. Actual crop damage is becoming apparent in alfalfa fields and in a few young citrus plantings adjacent to alfalfa fields in the Mesa area. Farmers are using poisoned bran mash in these areas to some extent.
- Idaho. C. Wakeland (April 25): Melanoplus bivittatus Say began hatching at Emmett, Gem County April 11. Economic species are not yet hatching in other parts of Idaho. Heavy outbreaks are expected in southeastern Idaho and in Jefferson County. An egg survey in Caribou County showed as many as 8,000 eggs of Camnula pollucida Scudd. per square foot of sod. All of the heavily infested counties are completely organized for control. Orders have been placed for 23 carloads of poisoned bait. Some of the districts most heavily infested last year will show decided decreases

this year, owing to parasitization by sarchophagids (most important), beefly larvae, ground beetle larvae, and blister beetle larvae.

Utah. G. F. Knowlton (April 23): Nymphs were hatching at Promontory on March 14. First and second instar nymphs were taken at Willard on March 31. Young grasshoppers are now causing some damage to young sugar beets at Kaneshville.

C. J. Sorenson (April 24): Grasshoppers are beginning to hatch in Cedar Valley, Utah County.

MORMON CRICKET (Anabrus simplex Hald.)

Idaho. C. Wakeland (April 25): Mormon crickets began hatching March 1 in eastern Idaho, and are now in the fourth and fifth instars. Hatching was more than a month earlier than last year and development correspondingly advanced. Infested area is estimated at 50,000 acres, exclusive of that on the Fort Hall Indian Reservation, 44,000 of which are on public domain and 6,000 on private lands. The large infestation in Fremont County, estimated at 30,000 acres is being dusted and the area on the Indian Reservation is being poisoned. It now appears that eggs will be laid late in May or early in June, at least a month earlier than usual.

CUTWORMS (Noctuidae)

Nebraska. M. H. Swenk (April 15): Numerous reports of the army cutworm (C. auxiliaris) in wheat and alfalfa fields have been coming in during the last 10 days from Kimball, Deuel, Lincoln, Merrick, and Pawnee Counties.

Kansas. H. R. Bryson (April 24): Between March 31 and April 16, reports of injury by Chorizagrotis auxiliaris Grote were received from Wichita, Sedgewick County, Miltonvale, Cloud County, and from Riley County. This insect, although moderately abundant, has not caused appreciable injury except in local areas.

Montana. A. L. Strand (April 2): C. auxiliaris is generally prevalent over the central part of the State, particularly in Fergus, Stillwater, Yellowstone, Lewis and Clark, and Gallatin Counties, damaging winter wheat in all parts of the area infested.

Colorado. G. M. List (April 21): Reports of army cutworms have been received from several localities in the eastern half of the State, where considerable damage is being done in wheat and alfalfa fields.

Utah. C. J. Sorenson (April 24): The pale western cutworm (Porosagrotis orthogonia Morr.) is very abundant; it has caused serious damage to fall wheat.

FALL ARMYWORM (Laphygma frugiperda S. & A.)

Louisiana. W. E. Hinds (April 27): Grass worm occurrence in large numbers is indicated by reports received from the southern part of La Fourche Parish about April 19.

WHITE GRUBS (Phyllophaga spp.)

Georgia. J. B. Gill (April 25): May beetles were reported as damaging buds of pecan trees in the Tifton territory. One report of damage to Cedrus deodara was received.

Michigan. R. Hutson (April 20): White grubs are moderately abundant in the southern half of the Lower Peninsula.

Wisconsin. C. L. Fluke (April 19): Brood "C" beetles are near the surface in Lafayette and Green Counties, ready to emerge when weather becomes warm. Very few grubs have moved up.

Mississippi. C. Lyle (April 23): A correspondent at Grenada, Grenada County, reported on April 6 that May beetles were injuring the foliage on her young pecan and walnut trees.

J. P. Kislanko (April 20): Several species of May beetles are numerous and injuring pecans and water oaks in Wiggins and Hattiesburg.

Louisiana. H. L. Dozier (April 30): The earliest flight of May beetles at New Orleans took place on April 3.

Texas. F. L. Thomas (April 24): Heavy flights of Phyllophaga congrua Lec. were noted in Liberty County during the first week of April. P. bipartita Horn and P. praetermissa Horn also are active, but are less abundant.

GREEN JUNE BEETLE (Cotinis nitida L.)

North Carolina. W. A. Thomas and L. B. Reed (April 13): Larvae of the green June beetle are doing considerable damage to lawns in the Chadbourn area. Apparently the infestation is somewhat heavier than normal.

Tennessee. J. Milam (April 20): White grubs of this species were found in a tobacco plant-bed at Clarksville. They are also numerous in gardens.

LEAF CUTTER ANTS (Atta spp.)

Texas. Bur. of Ent. (March 9): For several months this Bureau has been the recipient of numerous appeals, originating both with local chambers of commerce and private individuals in western Texas, for information and aid in the control of leaf cutter ants.

CEREAL AND FORAGE - CROP INSECTS

WHEAT AND OTHER SMALL GRAINS

CHINCH BUG (Blissus leucopterus Say)

Ohio. T. H. Parks (April 24): Chinch bugs are present in more than normal numbers in their hibernating places in fallen leaves along fence rows and borders of woodland. Very few are present in old cornstalks or shocks. There is not much opportunity for spring burning, as the ground cover has been wet.

Illinois. W. P. Flint (April 20): Weather conditions have failed to reduce to any appreciable extent the numbers of hibernating chinch bugs. Recent counts show from 4 to 5 percent winter mortality. Up to the present time very little flight from winter quarters has occurred. The bugs are extremely numerous and active in their winter quarters, and general flights will start as soon as we have sufficiently high temperatures.

Michigan. R. Hutson (April 20): Chinch bugs are very abundant in Monroe and Lenawee Counties.

Iowa. C. J. Drake (April 12): Chinch bugs are present in great numbers in southern Iowa. In some cases we are finding over 4,000 bugs in one square foot of dense grass. Very few bugs have left winter quarters.

Missouri. L. Haseman (April 24): The situation becomes more alarming with continued dry weather. Bugs have been moving from winter quarters on warm days and are abundant in barley already.

Kansas. H. R. Bryson (April 23): A heavy flight occurred at Manhattan about April 5-7. A similar one was reported from Hoyt on April 18. The bugs are quite abundant in wheat, barley, and rye fields.

Nebraska. M. H. Swenk (March 15 to April 15): There is a probability that southeastern Nebraska will be faced with the most serious outbreak in many years. The principal threatened area extends along the southern boundary of the State from Richardson County to Redwillow County, and north to northern Otoe and Lancaster Counties, as well as to Seward, Fillmore, Clay, Adams, Kearney, Phelps, Gosper, and Frontier Counties. Everywhere in this area the population is above normal.

Oklahoma. C. F. Stiles (April 21): Chinch bugs are present in small numbers in oat fields at this time.

GREEN BUG (Toxoptera graminum Rond.)

Missouri. L. Haseman (April 24): The green bug has been attracting much attention for the past two or three weeks in wheat, barley, and timothy in southern Missouri.

Nebraska. M. H. Swenk (April 15): A report received from a Banner County correspondent on April 12, stated that 100 acres of a field of wheat had been killed out by the green bug, specimens of which accompanied

the report. This aphid was also found to be abundant in the wheat fields of the extreme southwestern counties of Nebraska, by L. M. Gates during the past week.

Kansas. H. R. Bryson (April 24): During the past month reports of infestations have come from 18 localities in as many counties, representing practically all sections of the State in which wheat is grown. The cool weather has been decidedly disadvantageous to the parasites and predators and very advantageous to the bug. The complete absence of precipitation has been a contributing factor in increased infestations and the growing severity of old infestations. Reports indicate that injury is on the increase. The wheat has been retarded in its development. H. B. Hungerford (April 9): The green bug was causing some damage to oats and wheat in southeastern Kansas on April 1. It is present in oats and wheat in Douglas County; and parasites are present.

Oklahoma. C. F. Stiles (April 21): The damage has increased during the past two weeks but seems to be at a standstill at present. Ladybeetles in all stages are very numerous in infested fields; and I believe they will check further spread. Internal parasites are present in small numbers. The cool weather during the past week seems to be holding them in check. The infestation is heaviest in Oklahoma, Logan, Payne, Pawnee, Osage, Noble, Kay, Garfield, and Grant Counties. There is a little infestation as far west as the western limit of Harper County.

Colorado. G. M. List (April 21): The green bug infestation is general over the eastern half of the State, being serious enough in Larimer, Weld, and Adams Counties to destroy a considerable acreage of wheat. Ladybeetles are quite abundant, and it is hoped that relief will come through their work.

GRAIN APHIDS (Aphididae)

Oregon and Washington. L. P. Rockwood (March 31): Very populous colonies of Rhopalosiphum prunifoliae Fitch have been observed, especially on volunteer barley, but also on oats and wheat. Some yellowing of the tips of the leaves where colonies are established might be attributed to them. We found them especially abundant in Clarke County, Washington, on March 21, but there are about as many in some fields in the Willamette Valley of Oregon. They form more compact and populous colonies than Macrosiphum granarium Kby., and I believe they are doing more damage. Alates of M. granarium were abundant on volunteer and early fall-sown grain in January and February. They are now coming upon wheat and oats in some fields. They do not appear to be so abundant as R. prunifoliae in most fields, although there was about an even mixture on oats in one late fall-sown field in Clarke County, Washington, on March 21.

WESTERN WHEAT STEM MAGGOT (Hylemyia cerealis Gill.)

Colorado. G. M. List (April 21): The western wheat stem maggot has damaged a number of plantings of wheat, especially in Adams, Boulder, and Weld Counties. The infestation has been somewhat spotted, but some acreage will be destroyed.

A CRANE FLY (Tipula graminivora Alex.)

California. The crane fly which was reported in the Insect Pest Survey Bulletin, April, 1934, page 41, has been determined by C. T. Greene as T. graminivora.

A. E. Michelbacher (March 30): To-day I examined the field in which the tipulid injury occurred. I found the adults present in great abundance. An examination of the soil showed that most of the larvae had pupated.

CORN

CORN EAR WORM (Heliothis obsoleta Fab.)

Florida. J. R. Watson (April 23): The corn ear worm is scarce. It is beginning to occur in corn in central and southern Florida.

Louisiana. W. E. Hinds (April 27): The corn ear worm is scarce in Louisiana generally, or unusually late in southern Louisiana.

Texas. S. W. Clark (April 24): The corn ear worm is moderately abundant at Edinburg and Weslaco.

ALFALFA

PEA APHID (Illinoia pisi Kalt.)

Indiana. J. J. Davis (April 20): Reported as very abundant and apparently seriously damaging alfalfa at Bloomfield.

Iowa. C. J. Drake (April 30): The pea aphid is very abundant in the southern part of the State. We have received complaints from Fremont and Lee Counties and indirect reports from other counties. The County Agent of Lee County reported that 90 percent of a 25-acre field of alfalfa at Donnellson, had been destroyed.

Missouri. L. Haseman (April 24): The pea aphid has been very abundant for the past three weeks in the western half of the State, from Joplin to the Iowa line, where it has killed some alfalfa. It is scarce in the central and eastern part of the State.

Mississippi. J. P. Kislanko (April 19): English peas are heavily infested in Jones County.

Nebraska. M. H. Swenk (April 15): The pea aphid was reported attacking alfalfa in Pawnee County the second week in April.

Kansas. H. R. Bryson (April 23): The pea aphid has become very abundant and injurious in almost every section of the State where alfalfa is grown. The continued dry, cool weather has retarded the alfalfa and has proved advantageous to the aphid and disadvantageous to the parasites and predators. The outbreak is probably the most widespread and injurious of any since 1921. Reports of injury have been received from 20 localities and 19 counties, in the northeastern part of the State, extending in a line from Decatur County in the northwestern part, southeastward to Cowley County.

H. B. Hungerford (April 9): The pea aphid is ruining the first crop of alfalfa in Douglas County.

Colorado. G. M. List (April 21): The pea aphid is quite abundant in alfalfa fields in the Arkansas Valley and in the irrigated sections north of there and east of the mountains. The growth of hay is being very seriously checked.

Idaho. C. Wakeland (April 25): The pea aphid is unusually abundant on alfalfa and is causing serious damage on the first crop. The mild winter allowed heavy populations to survive and the first generations developed very early.

Utah. C. J. Sorenson (April 24): Aphids are seriously damaging alfalfa in localized areas of Salt Lake, Tooele, and Weber Counties.

Nevada. G. G. Schweis (April 23): Pea or alfalfa aphids are causing great damage in all the valleys of western Nevada. Many fields are completely brown where the alfalfa shoots have been killed down.

Oregon and Washington. L. P. Rockwood (March 31): Austrian winter field peas near Barlow, Clackamas County, Oreg., are seriously damaged. A field of common vetch near Vancouver, Wash., was practically ruined by March 21. Several fields of common vetch in Washington County, Oreg., are badly damaged, large spots showing up now even in a period of favorable growing weather. A field of smooth heavy vetch in Washington County that is very heavily infested shows some damage to tips of plants but not nearly so bad as the common vetch. Alate viviparous females found our plots of Canadian field peas, seeded on March 15, as soon as they showed above ground. Some cannery peas near Hillsboro, Oreg., showed alates well distributed and some already with large families and some larvae three-fourths grown, on March 29. It is hoped that the warm rains of the last 6 days of March will cause the fungous disease Empusa aphidis Hoffman to develop into a substantial check to the aphids. The disease is well distributed in alfalfa fields and early fall-sown vetch and pea fields. It has already affected nearly 40 percent of the population in some fields.

SUGARCANE

SUGARCANE BORER (Diatraea saccharalis Fab.)

Louisiana. W. E. Hinds (April 5): Emergence of moths from overwintered larvae began at Cypremort, on the extreme southern edge of the cane belt, during the first week of April. This is at least three weeks later than usual. (April 27): Eggs are quite abundant in some fields of early corn and advanced stubble cane. The first eggs parasitized by Trichogramma were taken at Jeanerette on April 24, which is unusually early.

T. E. Holloway and W. E. Haley (March 31): Observations showed that young cane planted on August 1, 1933, had as many as 11 live larvae per 100 stalks; cane planted September 1 had as many as 4 live larvae per 100 stalks. No borers were found in cane planted after October 1, which is the usual planting time.

SUGARCANE BEETLE (Euetheola rugiceps Lec.)

Louisiana. W. E. Hinds (April 6): Adults were observed in flight on warm evenings of April 3 and 4 with temperatures of 75 to 80° F. Attack on corn and cane is just beginning. The beetles are as abundant as usual.

F R U I T I N S E C T S

APPLE

CODLING MOTH (Carpocapsa pomonella L.)

New York. P. J. Parrott (April 23): In some sections of western New York many overwintering larvae were killed by low temperatures.

New Jersey. T. J. Headlee (April 25): The codling moth is moderately abundant.

Delaware. L. A. Stearns (April 24): Pupation of overwintered larvae was just commencing the second week in April in southern Delaware.

Pennsylvania. H. N. Worthley (April 14): The record of survival at State College was as follows on April 10: 23.9 percent survival in strawboard bands in a screen-bottomed cage in the orchard and 9.6 percent survival in strawboard strips exposed (except for screening) on the trunks of the trees. In 1933 about 50 percent of the overwintering larvae produced moths. No such difference in the two types of cage has been noted before and this would seem to be an effect due to exposure of the larvae on the tree trunks.

Maryland. E. N. Cory (April 24): The codling moth is pupating.

Georgia. C. H. Alden (April 21): The first moth was caught in bait traps, April 14, at Cornelia.

Ohio. T. H. Parks (April 24): The codling moth is moderately abundant and is well advanced in Lawrence County. About 50 percent were pupated April 12, when buds were in the pre-pink stage. Parasitization is very low.

Illinois. W. P. Flint (April 20): Codling moth pupation started in southern Illinois during the week of April 8. Cool weather has retarded pupation. No pupation has occurred at Urbana.

Michigan. R. Hutson (April 20): The codling moth is very abundant, with from 30 to 40 percent mortality.

Missouri. L. Haseman (April 24): Recent counts show about 60 to 70 percent survival, but there has been more winter cleanup work done than ever before and growers are optimistic.

Kansas. H. R. Bryson (April 15): Reports from the Arkansas River Valley indicate that a large percentage of the overwintering larvae has been destroyed through excellent sanitation methods applied by the C. W. A.

Idaho. R. W. Haegele (April 18): Codling moth emergence started at Parma on April 12, the earliest on record. The calyx spray was started April 17.

Nevada. G. G. Schweis (April 23): The codling moth is moderately abundant in western Nevada.

Washington. E. J. Newcomer (April 20): The first moths were noted at Yakima April 12, which is a month earlier than last year and several days earlier than the previous earliest season. The calyx spray has mostly been applied, and in many cases the first cover spray will be on by May 1.

Oregon. D. C. Mote (April 24): Adults have been taken in bait in the Willamette Valley for the past several nights.

California. E. O. Essig (April 19): The codling moth is very abundant; abnormally heavy flight of adults occurred in April.

EASTERN TENT CATERPILLAR (Malacosoma americana Fab.)

New Hampshire. L. C. Glover (April 24): The eastern tent caterpillar is moderately abundant. Hatching started the third week in April and apparently there was no winter killing.

Massachusetts. A. I. Bourne (April 24): Tent caterpillars were observed hatching at Amherst on April 15, and on the 17th at the Waltham Station. Caterpillars were hatching without showing any appreciable winter killing.

Connecticut. E. P. Felt (April 23): Apple tent caterpillars appear to be abundant in Stamford, the small webs being very evident upon wild cherry. W. E. Britton (April 24): The eastern tent caterpillar is moderately abundant; egg masses are abundant; there was little winter mortality.

Delaware. L. A. Stearns (April 24): Hatching was first observed April 17 at Newark.

New Jersey. T. J. Headlee (April 25): The eastern tent caterpillar is very abundant.

Pennsylvania. A. B. Champlain (April 24): The eastern tent caterpillar is moderately abundant in Dauphin County. Hatching and forming of nests was observed April 20.

H. E. Hodgkiss (April 23): Eggs are abundant, and even in the area of lowest sub-zero winter temperatures the hatch is normal. In the northern tier of counties the webs were being spun on April 20.

Maryland. E. N. Cory (April 24): The eastern tent caterpillar is very abundant over the central part of the State.

West Virginia. L. M. Peairs (April 24): The eastern tent caterpillar was observed hatching at Morgantown on April 20.

North Carolina. W. A. Thomas and L. E. Reed (April 14): The overwintering eggs began hatching at Chadbourn about the middle of March at a time when there was scarcely any foliage on the trees. The population is apparently much larger this year than normal and approximately half of the wild cherry trees in this area have been completely defoliated. As many as a dozen nests have been observed in a single tree of medium size. The larvae have now about reached maturity.

Georgia. O. I. Snapp (April 2): Caterpillars are more abundant than usual at Dry Branch.

Tennessee. J. U. Gilmore (April 19): There are probably more tents around Clarksville than there have been in the past five years. Complete defoliation of many wild cherry trees is now apparent. Little damage to apple and peach has been observed.

Mississippi. C. Lyle (April 23): Specimens collected from peach trees were recently received from Bay Springs, Jasper County, and Lexington, Holmes County. Only slight infestations were reported in each case.

PISTOL CASE BEARER (Coleophora malivorella Riley)

West Virginia. L. M. Peairs (April 24): The pistol case bearer was reported as abundant in a few orchards in Jefferson County.

APPLE FRUIT MINER (Marmara pomonella Busck)

New York. E. P. Felt (April 23): The work of the bast miner, M. pomonella, in young apple twigs was reported from Bay Shore, L. I.

APHIDS (Aphidae)

New Hampshire. L. C. Glover (April 24): The apple aphids (Aphis pomi DeG.) has been reported as plentiful throughout the State. The eggs commenced to hatch the second week in April.

Vermont. H. L. Bailey (April 25): A. pomi is scarce; young have hatched and are on the opening buds of apple at Dummerston.

Massachusetts. A. I. Bourne (April 24): We noted the hatching of orchard plant lice on or about April 15 at Amherst. Some of the earlier observations indicated that a very considerable percentage of the overwintering eggs was collapsing. At the present time, however, we are noting a sizeable hatch in some orchards.

Connecticut. P. Garman (April 23): The green apple aphid is abundant in some orchards. Ladybird beetles are reported by growers in several parts of the State, indicating that they have passed the winter successfully.

New York. P. J. Parrott (April 23): The apple grain aphid is moderately abundant in western New York. The rosy (Anuraphis roseus Baker) and the green (A. pomi) apple aphids have not yet hatched.

N. Y. State Coll. of Agr. News Letter (April): In the lower Hudson River Valley the apple grain aphid (Rhopalosiphum prunifoliae Fitch) was observed to be hatching on April 9; and nymphs were observed in Dutchess and Orange Counties on April 10. By the third week in the month they were noticed in unusually large numbers in Orange, Dutchess, and Greene Counties. The apple aphid was reported as starting to hatch in Onondaga County the week of April 23. The rosy apple aphid, A. roseus, was observed hatching in Dutchess County on April 14; and one individual was observed in Ulster County on April 12. (Abstract J. A. H.)

New Jersey. T. J. Headlee (April 25): The rosy apple aphid and the green apple aphid are scarce, while the oat aphid is abundant.

Pennsylvania. H. N. Worthley (April 14): Aphid eggs: 232 twigs examined, average survival 57.7 percent; minimum survival 41 percent; and maximum 75 percent, from Franklin County. In beakers of water in the laboratory the collapse of eggs continued, and only 8 percent hatched. The value of these records as to survival in the field is questionable, for all lots except those at State College were in the mail from 24 to 48 hours. At State College aphids were seen on buds of flowering crab during the last week in March, and on opening buds of apple in the silver tip stage on April 9. The large numbers indicated no abnormal effect of low winter temperatures. Weather Bureau records at State College give minima of -6°F. on December 29, -17°F. on February 9, and -13°F. on February 28. Aphids observed so far are all green (A. pomi) and grain (A. prunifoliae) H. E. Hodgkiss (April 23): Nymphs of the green apple aphid and the grain aphid were hatching in the southern counties April 1 in unusually large numbers. Of the two species the grain aphid is more abundant. In the northern counties they started a week later. Rosy aphid eggs commenced to hatch in the most southern counties on April 10. State-wide observations indicate a very light infestation. Adalia bipunctata L. is abundant on apple trees. Syrphid fly eggs were first seen on April 10 and since then have increased in greater numbers than in 1932, when they were plentiful.

Delaware. L. A. Stearns (April 24): Initial hatching of grain aphids noted during the first week of April.

Maryland. E. N. Cory (April 24): Fruit aphids are moderately abundant, oat aphids principally.

Virginia. W. J. Schoene (April 30): The reports indicate that the various species of apple aphids are very scarce in all orchard sections this year. This seems to be true on trees sprayed as well as those not sprayed.

The
West Virginia. L. M. Peairs (April 24): rosy (A. roseus) and the green (A. pomi) are scarce in Jefferson and Berkeley Counties.

Georgia. C. H. Alden (April 21): Fruit aphids are scarce at Cornelia.

Ohio. T. H. Parks (April 24): Apple aphids, mainly green and apple grain aphids, are more abundant than usual on the opening buds. The cold rainy weather of the middle of April killed many of these newly hatched aphids

in Jackson County. Some are still hatching at Columbus. Some eggs of syrphid flies are present among these.

Kentucky. W. A. Price (April 24): Green fruit aphids are very abundant, also rosy aphids.

Missouri. L. Haseman (April 24): Fruit aphids are scarcer than usual but cool weather may enable them to build up. We have taken no rosy aphids as yet.

Kansas. H. R. Bryson (April 24): The apple grain aphid has been reported as very abundant on apple trees in the Arkansas River Valley in the vicinity of Oxford.

Idaho. C. Wakeland (March 30): All forms of orchard aphids are hatched; some of these appeared the last of February. Infestations of the woolly apple aphid (Eriosoma lanigera Hausm.) are the most severe we have ever experienced. (April 25): Aphids are very abundant in apple orchards throughout the State. Extensive spraying is being done.

Oregon. D. C. Mote (April 24): The woolly apple aphid (E. lanigera) is more abundant in the Willamette Valley than it has been for many years.

SAN JOSE SCALE (Aspidiotus perniciosus Comst.)

New Hampshire. L. C. Glover (April 24): Very high mortality of the San Jose scale has been reported from Hollis, Wilton, and Kensington. The specimens inspected in the laboratory show less than 5 percent survival.

Connecticut. W. E. Britton (April 24): The San Jose scale is scarce, about 75 percent dead.

New York. E. P. Felt (April 23): The San Jose scale has suffered heavy winter mortality at Freeport, L. I.

W. E. Blauvelt, N. Y. State Coll. of Agr. News Letter (April 9): Examination of over 5,000 young, black individuals show a high winter mortality. In Tompkins, Ontario, Yates, Genesee, and Monroe Counties the mortality was 97 to 100 percent. In Ontario and Yates Counties the low temperatures in February ranged from -24° to -30° F. As low or lower temperatures occurred in Onondaga, Livingston, Wyoming, Chautauqua, and most of Erie County, and it is probable that a similar high mortality of scale occurred. In Orleans and most of Niagara County the mortality in most of the samples examined was from 80 to 86 percent. The temperature in these areas was reported as about -15° to -20° F. in the zones near the lake and about -24° in the middle and southern parts. In a small area in the northwest corner of Niagara County, around Youngstown and extending south along the Niagara River, the temperature reached only 10 to 12 degrees below zero and the mortality of scale was around 50 percent. The Hudson Valley samples of scale from Ulster and Columbia Counties showed a mortality of from 80 to 90 percent. Examination of scale on currants from Orange County showed a rather high survival.

Pennsylvania. H. N. Worthley (April 14): On 49 twigs examined, the average survival was 45.2 percent; minimum 39 percent from Centre County; maximum 50.8 percent from Franklin County.

Illinois. W. P. Flint (April 20): Counts from several orchards in northern Illinois, where the official temperature was -20°F., show from 50 to 60 percent of the scales alive. Apparently the period of cold weather was not long enough to affect the scale seriously.

Idaho. C. Wakeland (April 25): The mild winter allowed heavy survival. Development is early; and undoubtedly this year will see a heavy increase in populations.

TARNISHED PLANT BUG (Lygus pratensis L.)

Missouri. L. Haseman (April 24): The tarnished plant bug has been abundant and active in central Missouri, and what is probably the same species was reported as blighting some apple fruit buds in northwestern Missouri recently.

EUROPEAN RED MITE (Paratetranychus pilosus C. & F.)

Massachusetts. A. I. Bourne (April 24): All our observations thus far would indicate that the European red mite will have an approximately normal hatch.

Connecticut. P. Garman (April 23): The European red mite is generally less abundant than usual. Where present it has passed the winter successfully. Occasional orchards only appear to be infested.

Pennsylvania. H. E. Hodgkiss (April 23): Eggs are more abundant on apples and peaches than at any time since 1931.

H. N. Worthley (April 14): European red mite eggs: 206 twigs examined; average survival 68.1 percent; minimum 0 percent at State College; maximum 91 percent from Franklin County.

Idaho. C. Wakeland (March 30): European fruit mite eggs have hatched in the Lewiston district.

PEACH

ORIENTAL FRUIT MOTH (Grapholitha molesta Busck)

Delaware. L. A. Stearns (April 24): Fifty-four percent of the overwintered larvae had pupated on April 19.

Virginia. W. J. Schoene (April 30): Adults are emerging in large numbers in the vicinity of Roanoke, and it is expected that much injury will be caused.

Georgia. O. I. Snapp (April 24): First-brood larvae are now appearing in peach twigs at Fort Valley, the largest being about one week old on this date. First-generation eggs hatched about the usual time this year and, therefore, the usual number of broods is anticipated. The dates of first

twig injury in other years are as follows: April 10, 1925; April 20, 1926; April 1, 1927; April 25, 1928; April 4, 1929; April 29, 1930; April 22, 1931; May 17, 1932; April 20, 1933.
C. H. Alden (April 21): Adults have been caught in bait traps for the past two weeks at Cornelia.

LESSER PEACH BORER (Aegeria pictipes G. & R.)*

Georgia. O. I. Snapp (April 12): Spring-brood moths are beginning to emerge.

PLUM CURCULIO (Conotrachelus nenuphar Hbst.)

Delaware. L. A. Stearns (April 24): First emergence of the plum curculio from hibernation was observed at Camden on April 20.

Georgia. O. I. Snapp (April 20): Adults appeared from hibernation in numbers at Fort Valley between April 1 and 3 and were disseminated throughout the orchards by April 10. Eggs were found in the little peaches on April 18. (April 24): The first larvae of the season were found today in green peaches. They were about two days old. An adult depositing eggs in a peach was observed in an orchard on April 19.
C. H. Alden (April 21): Curculios were caught on jarring frames starting April 9 at Cornelia and on April 2 at Thomaston.
T. L. Bissell (April 5): The first beetle of the year was jarred from peach April 5 at Experiment (6 jarrings made previously, from March 21 to April 2).

South Carolina. W. C. Nettles and F. Sherman (April 25): Adults were observed in the Sandhill and Piedmont sections, April 2 to 17.

GREEN PEACH APHID (Myzus persicae Sulz.)

Montana. A. L. Strand (April 2): M. persicae is moderately abundant.

Idaho. R. W. Haegeler (April 18): The peach aphid is very abundant in southwestern Idaho.

Utah. G. F. Knowlton (April 18): Green peach aphids working inside the blossoms have caused large numbers of peach blooms to dry up upon trees at the Davis County Experiment Station farm.

Nevada. G. F. Schweis (April 2): Aphids are very abundant in western Nevada and are curling the leaves of peach and plum.

PEAR:

PEAR PSYLLA (Psyllia pyricola Foerst.)

Massachusetts. A. I. Bourne (April 24): Pear psylla eggs were observed at Amherst on April 19, and at Waltham on the 18th. Eggs are hatching

*Correction: The note in the Insect Pest Survey Bulletin, April, 1934, page 47, by O. I. Snapp, under Aegeria exitiosa refers to A. pictipes.
Say

without showing any appreciable winter killing. There seems to be an abundance of the adult psyllas which survived the winter.

Connecticut. P. Garman (April 23): Pear psylla eggs were observed in commercial orchards in New Haven County.

New York. N. Y. State Coll. of Agr. News Letter (April): The pear psylla was abundant and laying eggs in the Hudson River Valley during the middle of the month, and by the third week eggs were very plentiful throughout that region and also in western New York. (Abstract, J. A. H.)

Michigan. R. Hutson (April 20): The pear psylla is moderately abundant and laying eggs.

CHEERRY

BLACK CHERRY APHID (Myzus cerasi Fab.)

Montana. A. L. Strand (April 2): The cherry aphid is prevalent in large numbers throughout cherry orchards in the vicinity of Flathead Lake.

PLUM

RUSTY PLUM APHID (Hysteroneura setariae Thos.)

Georgia. O. I. Snapp (April 19): This insect is now abundant on plum at Fort Valley.

Mississippi. C. Lyle (April 23): Plum twigs showing heavy infestations were received from Hattiesburg, Forrest County, on April 2, and from Lombardy, Sunflower County, on April 23.

CITRUS

A SCALE INSECT (Margarodes rileyi Giard.)

Florida. J. R. Watson (April 23): Considerable interest has been aroused among citrus growers by the discovery in citrus groves in Polk and Lake Counties of a species of Margarodes, provisionally identified by H. Morrison as M. rileyi. We have found as many as 4,000 live cysts in two quarts of soil taken around citrus roots. Trees in this situation have a very unthrifty appearance. The adults began to emerge about the middle of the month and the first eggs were found on the 19th.

CITRUS WHITEFLY (Dialeurodes citri Riley & How.)

Florida. H. T. Fernald (April 20): The citrus whitefly was very abundant in Orlando the first two weeks in April.

Mississippi. C. Lyle (April 23): Cape jasmine leaves showing a heavy infestation were received from a correspondent at Way, Madison County, on April 18.

D. W. Grimes (April 20): The citrus whitefly is moderately to very abundant on privet and cape jasmine at Cruger and Durant in Holmes County.

Louisiana. W. E. Hinds (April 27): The citrus whitefly is very abundant on citrus, privets, and other plants.

California. D. B. Mackie (April 18): Two infested trees were found in Marysville, Yuba County; no living fly has been found in Orange, Los Angeles, Sacramento, Butte, Colusa, or Sutter Counties.

CITRUS RUST MITE (Phyllocoptes oleivorus Ashm.)

Florida. J. R. Watson (April 23): Rust mites were very abundant until checked by recent heavy rains, which were unusually heavy for April.

H. T. Fernald (April 20): The citrus rust mite is moderately abundant at Orlando.

Mississippi. J. E. Lee (April 14): The citrus rust mite is reported as very abundant at Carriere.

GARDEN SLUG (Agriolimax agrestis L.)

California. H. J. Ryan (April 14): An infestation of a slug, identified by Dr. Howard Hill of the Los Angeles County Museum as A. agrestis, did some damage to foliage and navel oranges on the trees of a grove at Duarte, Los Angeles County, during March. The damage was most evident on the oranges on low hanging branches. As these were picked during March and no further serious injury was noted, no control measures were used.

A SNAIL (Helix pisana Muller)

California. D. B. Mackie (April 18): A new infestation of this pest was found early in April in a citrus grove near Anaheim, Orange County. The forces of the State are organizing to take up its eradication.

AVOCADO

PYRIFORM SCALE (Protopulvinaria pyriformis Ckll.)

Florida. J. R. Watson (April 23): Among the insects which have been particularly prominent in our correspondence during the last month has been a pyriform scale. The infestations are on avocados, concerning which we have received more complaints than we have ever received before in the same length of time.

T R U C K - C R O P I N S E C T S

SPOTTED CUCUMBER BEETLE (Diabrotica duodecimpunctata Fab.)

Virginia. P. D. Sanders (April 2): Two 12-spotted cucumber beetles were observed on the wing in the capitol grounds at Richmond today.

North Carolina. W. A. Thomas and L. B. Reed (April 7): This insect is more abundant than usual and is doing considerable feeding on most of the

early spring cruciferous crops at Chadbourn. The injury is apparently more serious to young cabbage plants that have just been transplanted than to other crops.

Georgia. T. L. Bissell (April 23): First beetles were observed at Experiment, on March 5. On March 22 the beetles were scarce on rye and Austrian peas and abundant on blossoms of wild plum (34 jarred in 15 minutes). On April 10 and 20 the beetles were scarce on peas and fruit trees.

FALSE CHINCH BUG (Nysius ericae Schill.)

North Carolina. W. A. Thomas and L. B. Reed (April 9): The adults are becoming rather abundant on young mustard planted for spring market at Chadbourn. The population has not reached the point where serious damage is being done. There is no evidence that the severe winter was of any practical aid in reducing the overwintering population.

Arizona. C. D. Lebert (April 18): Several calls regarding this insect over-running yards, getting into houses, and on citrus and roses have been received.

SEED CORN MAGGOT (Hylemyia cilicrura Rond.)

Louisiana. W. E. Hinds (April 27): The seed corn maggot is very abundant on beans and early potatoes in southern Louisiana.

POTATO AND TOMATO

COLORADO POTATO BEETLE (Leptinotarsa decemlineata Say)

Virginia. H. G. Walker and L. D. Anderson (April 26): The Colorado potato beetle is just beginning to emerge from hibernation at Norfolk.

South Carolina. W. C. Nettles and F. Sherman (April 25): The beetle was observed in eastern South Carolina on April 19.

Georgia. J. B. Gill (April 25): The Colorado potato beetle is very abundant on potato and tomato plants at Tifton.

Mississippi. N. D. Peets (April 17): The beetle is very abundant in southwestern Mississippi; more abundant than in recent years.

Louisiana. W. E. Hinds (April 27): The Colorado potato beetle is unusually abundant in Louisiana generally.

TOBACCO FLEA BEETLE (Epitrix parvula Fab.)

Virginia. H. G. Walker and L. D. Anderson (April 25): The eggplant flea beetle (E. parvula Fab.) is moderately abundant on young potato plants near Norfolk.

CORN FLEA BEETLE (Chaetocnema pulicaria Melsh.)

Georgia. T. L. Bissell (April 23): This insect was observed at Experiment ^{high} damaging young corn about 3 inches, with one or more beetles in each plant most of which were working inside unfolding leaves.

Mississippi. J. Milton (April 21): A serious outbreak of flea beetles was observed on tomato at Utica April 11. They were attacking plants recently set in the fields. The plants were greatly weakened by the attack.

POTATO TUBER WORM (Gnorimoschema operculella Zell.)

Utah. G. F. Knowlton (April 18): Washington, Iron, and Beaver Counties are now quarantined because of the presence of the potato tuber moth in a few localities of each county.

STALK BORER (Papaipema nebris nitela Guen.)

Tennessee. J. Milam (April 10): A 10 to 15 percent infestation of one cold frame of tomato transplants was reported from Dyer; possibly 1,000 infested plants.

SUCKFLY (Dicyphus minimus Uhl.)

Texas. F. L. Thomas (April 24): This insect is extremely abundant in the vicinities of Mission and Edinburg, causing severe damage to the tomato crop. It is also more abundant than usual at Weslaco, according to S. W. Clark.

SQUASH BUG (Anasa tristis DeG.)

Mississippi. G. L. Bond (April 16): Squash bugs are doing considerable damage to Irish potatoes at Moss Point. As high as 8 or 10 bugs were found on 1 plant and such infested plants were scattered all over the patches.

LEAF-FOOTED BUG (Leptoglossus phyllopus L.)

Louisiana. W. E. Hinds (April 27): Leaf-footed plant bugs have been very numerous on and injurious to Irish potatoes, together with potato beetles

BEANS

MEXICAN BEAN BEETLE (Epilachna corrupta Muls.)

Delaware. L. A. Stearns (April 24): High mortality has occurred in hibernation cages at Newark.

Virginia. H. G. Walker and L. D. Anderson (April 26): The Mexican bean beetle is still in hibernation at Norfolk.

West Virginia. L. M. Peairs (April 24): A few were seen at Morgantown early in April.

CABBAGE

IMPORTED CABBAGE WORM (Ascia rapae L.)

Maryland. E. N. Cory (April 24): The cabbage butterfly was first observed on April 13.

Florida. H. T. Fernald (April 20): Adults were unusually abundant around cruciferous crops during the first half of April in the field crops sections near Orlando.

Utah. G. F. Knowlton (April 11): Imported cabbage worm butterflies are now flying in Davis and Weber County areas.

CABBAGE APHID (Brevicoryne brassicae L.)

Tennessee. J. Milan (April 16): Small numbers of this pest have recently appeared on cabbage at Clarksville.

Mississippi. C. Lyle (April 23): Heavily infested cabbage plants were received on April 10 from a grower at Edwards, Hinds County.

HARLEQUIN BUG (Murgantia histrionica Hahn)

Virginia. H. G. Walker and L. D. Anderson (April 26): The harlequin bug has been found to have passed the winter successfully in rather large numbers in a protected place in a flower garden near Norfolk.

North Carolina. W. A. Thomas and L. B. Reed (April 5 to 15): During the past few days large numbers have suddenly appeared in several fields of cabbage and mustard around Chadbourn. It appears that they all came from a northerly direction and settled within the fields in very limited areas. Even their movements within the field were from north to south. It was not uncommon to find as many as 50 of these insects on a single cabbage plant, 6 inches in diameter or less. There was no indication of egg laying until the end of the second week in April. At the present time hundreds of egg clusters are found on the lower leaves of cabbage, especially those that are partly in contact with the soil. There is no evidence to show where these insects hibernated, as there was no large population in this immediate territory last fall. In this area all food plants were destroyed the latter part of January.

South Carolina. W. C. Nettles and F. Sherman (April 25): The first complaint of this insect was received on April 6 from eastern South Carolina.

Mississippi. C. Lyle (April 23): Harlequin cabbage bugs were reported abundant on mustard and cabbage in gardens at Hazlehurst, Copiah County, on April 10, and at Starkville, Oktibbeha County, on April 19.

Louisiana. W. E. Hinds (April 27): The harlequin bug is very abundant in many fields of crucifers in southern Louisiana.

CABBAGE MAGGOT (Hylemyia brassicae Bouche)

Virginia. W. J. Schoene (April 30): Reports of severe injury to newly planted cabbage at Wytheville has been received. This insect is always present in this area, but causes injury only in favorable years.

ASPARAGUS

ASPARAGUS BEETLE (Crioceris asparagi L.)

South Carolina. W. C. Nettles and F. Sherman (April 25): The asparagus beetle was observed in Saluda County on April 13.

Oregon. D. C. Mote (April 24): The most severe outbreak in many years has been reported from Hood River, the Dalles, Willamette Valley.

MELONS

STRIPED CUCUMBER BEETLE (Diabrotica vittata Fab.)

Maryland. E. N. Cory (April 26): Today we found about 50 adult striped cucumber beetles in dry leaves on a hillside covered with mixed oak, tulip and pine forest. This is the first time that we have found this beetle in numbers in hibernation.

Mississippi. D. W. Grimes (April 20): The striped cucumber beetle is very abundant at Carthage, and is reported as doing severe damage to young watermelons.

ONIONS

ONION THRIPS (Thrips tabaci Lind.)

California. R. E. Campbell (April 1): Thrips damage to the commercial plantings of onions in the Coachella Valley has been reported, and severe damage has been observed in several small fields near Alhambra.

EGGPLANT

EGGPLANT FLEA BEETLE (Epitrix fuscula Crotch)

Louisiana. W. E. Hinds (April 27): This flea beetle has seriously injured eggplant in East Baton Rouge and St. Mary Parishes.

STRAWBERRY

STRAWBERRY LEAF ROLLER (Ancyliis comptana Froel.)

Kansas. H. R. Bryson (April 23): The strawberry leaf roller has reached outbreak proportions in northeastern Kansas in the vicinities of Troy, Wathena, and Blair.

Utah. G. F. Knowlton (April 18): Moths are extremely abundant in strawberry patches at Hyrum and North Logan in Cache County. A small number of eggs and a very few caterpillars are also present.

C. J. Sorenson (April 24): Damage has been reported in some areas of Weber and Utah Counties.

STRAWBERRY WEEVIL (Anthonomus signatus Say)

North Carolina. W. A. Thomas and L. B. Reed (April 18): The strawberry weevil began emerging from hibernation at Chadbourn on March 20 and by March 27 it began entering strawberry fields. The weevils seem to be more widespread than in former years. Even fields away from hibernation areas have become moderately infested, while those in close proximity to unburned areas have been injured to the extent of 25 percent or more. This widespread distribution of the weevil seems to be due to strong winds during the period of emergence which blew them a considerable distance from their winter quarters. Control operations have been more general in this territory than in former years.

Mississippi. J. P. Kislanko (April 20): The strawberry weevil is moderately abundant in Stone and adjoining counties, injuring bloom buds of native blackberry and youngberry.

STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus L.)

Oregon. W. D. Edwards (April 21): B. ovatus is beginning to pupate.

COMMON RED SPIDER (Tetranychus telarius L.)

Virginia. H. G. Walker and L. D. Anderson (April 26): The red spider is very abundant and injurious in some of the strawberry fields in the Norfolk area. It has also been found infesting foxglove and columbine.

North Carolina. W. A. Thomas and L. B. Reed (April 19): The strawberry red spider, which has been so much in evidence at Chadbourn is much less abundant at this time that it was in the late winter. The strawberry plants are growing very rapidly with fruit nearing the period of maturity; so it is improbable that the injury will be as serious as it was last season. The population was greatly decreased by the unusually cold weather of January and February. In the dusting operations for the control of the strawberry weevil, the red spider was further reduced.

Mississippi. M. L. Grimes (April 19): There is a general infestation of red spider on strawberry.

BEETS

BEET LEAFHOPPER (Eutettix tenellus Bak.)

Idaho. J. C. Chamberlin, Mo. Letter, Bur. Ent. (March): Prospects are for low populations in Twin Falls, Jerome, Minidoka, and Cassia Counties.

Utah. G. F. Knowlton (April 23): The spring dispersal of the beet leafhopper has reached northern Utah. A few pale migratory forms were collected in Tooele County on April 17, and pale forms were moderately abundant from Hooper to Plain City in Weber County on April 23; and specimens were collected farther north in Box Elder County.

SPINACH CARRION BEETLE (Silpha bituberosa Lec.)

Utah. G. F. Knowlton (April 20): Larvae are abundant and seriously damaging one field of young sugar beets at Layton, Davis County. The larvae are now three-fourths grown.

TOBACCO

TOBACCO FLEA BEETLE (Epiditrix parvula Fab.)

Florida. F. S. Chamberlin (April 12): Tobacco flea beetles are very scarce on plant beds and newly-set tobacco in Gadsden County.

South Carolina. W. C. Nettles and F. Sherman (April 25): The tobacco flea beetle was observed at Florence on April 14.

Tennessee. J. U. Gilmore (April 20): Flea beetles have appeared the past month at Clarksville and have caused some damage to poorly canvassed tobacco plant beds. However, the beetles are not nearly so numerous as usual.

TOBACCO THRIPS (Frankliniella fusca Hinds)

Florida. F. S. Chamberlin (April 23): Very few thrips can be found on tobacco in Gadsden County. The infestation is evidently much below normal and may be attributed to the recent heavy rains.

F O R E S T A N D S H A D E - T R E E I N S E C T S

GYPSY MOTH (Porthetria dispar L.)

Vermont. H. L. Bailey (April 25): Several rather large colonies have been found in the upper Connecticut River Valley as far north as Wells River, Orange County, denoting an increase during the past five years in that locality. There is no indication of the moth in the interior and western sections of the State. Egg masses are reported as quite general in south eastern towns.

FOREST TENT CATERPILLAR (Malacosoma disstria Hbn.)

Mississippi. J. P. Kislanko (March 30): The forest tent caterpillar is quite generally distributed in Stone, Forrest, and Perry Counties, where wild plums and Crataegus spp. are being defoliated. Larvae are nearly full-grown.

Colorado. G. M. List (April 21): Examinations for eggs on cottonwood, poplar, and ash trees show that this insect will be quite injurious again in several towns in northern Colorado. The egg masses are much less numerous in the localities where a thorough spraying was done last year.

SPRING CANKER WORM (Paleacrita vernata Peck)

North Dakota. J. A. Munro (April 21): Adults moved up during the forepart of April.

Kansas. H. R. Bryson (April 23): P. vernata has been especially abundant in the State and reports from the Arkansas River Valley indicate a great abundance in orchards where sanitary measures have not been applied.

JAPANESE SCALE (Leucaspis japonica Ckll.)

New York. E. P. Felt (April 23): The Japanese scale has apparently suffered a heavy mortality. This is particularly evident at Freeport, L. I.

CYPRESS

A SAWFLY (Tenthredinidae)

California. R. E. Campbell (April 24): Since April 2 we have received 10 calls regarding sawfly larvae (species undetermined) on cypress, both hedges and trees, from Alhambra. Although the larvae are fairly abundant and apparently widespread, no great damage has been observed.

ELM

ELM LEAF BEETLE (Galerucella xanthomelaena Schr.)

Washington. E. J. Newcomer (April 20): The early season has brought this insect out in Yakima and in many cases elm trees are almost defoliated.

ELM SCURFY SCALE (Chionaspis americana Johns.)

Connecticut and New York. E. P. Felt (April 23): Eggs have wintered in excellent condition at Stamford, Conn., and at Great Neck, L. I.

JUNIPER AND CEDAR

CEDAR BARK BEETLE (Phloeosinus dentatus Say)

Virginia. E. P. Felt (April 23): The cedar bark beetle has been injuring twigs rather seriously in the vicinity of Richmond.

JUNIPER WEBWORM (Dichomeris marginellus Fab.)

Connecticut. M. P. Zappe (April): There is a heavy infestation on Juniperus communis in Madison. Apparently there has been no winter mortality.

INSECTS AFFECTING GREENHOUSE

AND ORNAMENTAL PLANTS

OYSTER-SHELL SCALE (Lepidosaphes ulmi L.)

New York. R. E. Horsey (April 23): Last year's branchlets of European ash, Fraxinus excelsa and Hoary Willow, Salix candida infested by scale were dead, caused by the cold winter or the scale or by both. Eggs under full sized scales were shriveled and dead. Evidently the death of the infest branch has an effect on the eggs. The branches and eggs of the scale were both alive on Albert honeysuckle, Lonicera albertii and a lilac from the Orient, Syringa sp. The lilac was badly incrustated with scale.

Illinois. W. P. Flint (April 20): Examinations of the oyster-shell scale in the east-central part of the State show that most of the overwintering eggs have been destroyed by mites or the scale killed by parasites.

CHAFF SCALE (Parlatoria pergandei Comst.)

Mississippi. C. Lyle (April 23): Infested leaves of Camellia japonica were received from a grower at Hazlehurst, Copiah County, on April 16; jasmine in a garden at Starkville, Oktibbeha County, was observed being injured on April 18.

A SCALE INSECT (Odonaspis penicillata Green)

Mississippi. C. Lyle (April 23): Bamboo twigs showing very heavy infestations were received from a correspondent at Gulfport, Harrison County, on March 23. He indicated that many of the bamboo plants in that vicinity were dying out and he believes the scale to be partially responsible.

EUONYMUS

EUONYMUS SCALE (Chionaspis euonymi Comst.)

Virginia. H. G. Walker and L. D. Anderson (April 26): As usual, the euonymus scale is rather abundant on many plantings of Euonymus at Norfolk.

Mississippi. C. Lyle (April 23): Heavy infestations on Euonymus were reported from Jackson, Hinds County, on April 12, and from Hattiesburg, Forrest County, on April 17.

GENISTA

A MOTH (Tholeria reversalis Guen.)

California. R. E. Campbell (April 24): So far this insect is not so abundant at Alhambra as it has been during the past 3 years, when most of the genista bushes were defoliated to a large extent.

GLADIOLUS

GLADIOLUS THRIPS (Taeniothrips gladioli M. & S.)

Indiana. J. J. Davis (April 25): Gladiolus thrips will probably be abundant again this season judging from the reports of infestations on corms.

I N S E C T S A T T A C K I N G M A N A N D
D O M E S T I C A N I M A L S

CATTLE

HORN FLY (Haematobia irritans L.)

Texas. O. G. Babcock (April 6): H. irritans was observed from April 2 to 6. From 0 to 25 per animal on Aberdeen angus were counted at Terra Alta, 25 miles southeast of Christoval.

BLOW FLIES (Muscidae)

Texas. O. G. Babcock (April 10): Blow flies are numerous at the Experiment Station at Sonora; approximately 70.60 percent being Phormia regina Meig., and 28 percent the screw worm (Cochliomyia macellaria Fab.).

WOOD TICKS (Dermacentor spp.)

Nebraska. M. H. Svenk (April 15): From Scotts Bluff County, on March 24, came the complaint of wood ticks (D. variabilis Say) infesting a frame building.

Missouri. L. Haseman (April 24): This year reports of ticks on dog at Columbia were received from April 1 to 15. In 1933 the first dog tick was taken at Columbia, April 23.

SHEEP

BLACK BLOWFLY (Phormia regina Meig.)

California. E. W. Laake (April): The following information has been received from a correspondent: We have never before had such serious infestations by blowflies as we have had this spring in California. There have been quite a few taggy sheep owing to the green grass conditions which together with the mild weather apparently have been ideal for the production of blowflies. Sheepmen report that lambs three days old are infested. An estimate that 20 percent of the animals are infested has been made. Last year very little trouble from blowflies was experienced.

SHEEP BOTFLY (Oestrus ovis L.)

Kentucky. W. A. Price (April 24): The sheep botfly has caused the loss of many sheep in McCracken County during the past few weeks. One farmer

reports the loss of 11 ewes from gid or blind staggers.

HORSE

BUFFALO GNATS (Simulium spp.)

Kentucky. W. A. Price (April 25): Buffalo gnats are appearing in swarms near Brandenburg. The area infested is in the Ohio River bottoms and extends along the river a distance of three miles.

Arkansas. M. P. Jones (April 30): The Buffalo gnats have killed several hundred head of livestock in east-central Arkansas. According to local people the pests appeared about one month later than usual. The County Agricultural Agent of Cross County, reported that 100 mules had been killed in that County. County Agents from Phillips, Monroe, Woodruff, Arkansas, Saint Francis, and Lee Counties also reported losses. The gnats were so abundant in the vicinity of Forrest City, Saint Francis County, that the windshields of automobiles passing through were plastered. A number of the farmers had built smudge fires in the evenings to protect the stock.

G. H. Bradley (May 2): The total deaths of mules have been conservatively estimated at 500. Counties affected are Cross, Lonoke, Lee, Phillips, and Monroe. Rivers examined indicate emergence of gnats complete for this season. No losses of stock have been reported since about April 26.

POULTRY

FOWL TICK (Argas miniatus Koch)

Utah. G. F. Knowlton (April 17): Ticks are reported as injuring chickens and turkeys wherever the ticks occur in Tooele County. (Det. by H. S. Peters, who states that this is their first record of this species from Utah.)

QUAIL

A BITING LOUSE (Lipeurus sp.)

Nebraska. M. H. Swenk (February 14): About a week ago I examined two specimens of bob-white quail shot near McCook, Redwillow County, and found upon them a couple of specimens of biting lice, of a species apparently not represented in our collection at this time.

HOUSEHOLD AND STORED-PRODUCTS INSECTS

EUROPEAN EARWIG (Forficula auricularia L.)

Idaho. C. Wakeland (March 30): The European earwig is becoming increasingly abundant in the Moscow and Coeur d'Alene areas in northern Idaho. Doubtless following the mild winter this insect will become of much greater importance during the present year.

INSECT PEST SURVEY BULLETIN

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No. 4

THE MORE IMPORTANT RECORDS FOR MAY 1934

Early in May grasshoppers started hatching in the Great Plains region and by the end of the month the poisoning campaign, which is being carried on in cooperation with the States, was well under way.

Mormon cricket outbreaks were recorded from Idaho, Montana, Wyoming, and Utah. No outbreaks of the coulee cricket are occurring in limited areas of Washington, one at Pasco, and the other near Wenatchee.

Heavy flights of the beet webworm and alfalfa webworm were recorded about the middle of the month from North Dakota, south to Kansas, and westward to Colorado.

The chinch bug outbreak has developed into what is probably the most serious outbreak in the past 50 years. The heavy drought over much of the chinch bug belt has prematurely dried the small grain and forced an earlier migration into the corn in some places.

The pea aphid was destructive over a wide area extending from the Gulf northward to Nebraska and Wyoming.

The first adults of the codling moth were observed in the Hudson River Valley during the second week in May. They were observed in Delaware and Virginia during the first week in May. In the West the first moths were observed during the middle of April in Colorado and the Pacific Northwest, and in Kansas during the first week in May. The peak of emergence had practically passed in all sections by the end of May.

One of the most severe outbreaks of the grape leafhopper ever recorded in the Santa Ana and San Joaquin Valleys of California was reported this year.

Spring counts of Japanese beetle larvae indicate that this insect suffered no abnormal winter mortality during the severe winter of 1933-34.

Single individuals of Brood VIII of the periodical cicada were recorded from Maryland in the vicinity of Washington, D. C. These records are well without the normal range of this brood, although previous records indicate that scattered individuals have been found in this region.

During the last week in April Mexican bean beetle adults were first observed in the eastern Virginia trucking section, and during the middle of May in Maryland. By the end of the month the insect was appearing in numbers in the South Atlantic States.

SPECIAL REQUEST OF OUR COLLABORATORS

If you find elms with wilting leaves or yellow or brown leaves accompanied by brown streaks in the young wood, collect about 6 specimens of twigs 1/4 to 1 inch in diameter and about 6 inches in length, which show the sapwood discoloration, and mail them to the Dutch Elm Disease Laboratory, Room 207, Post Office Building, Morristown, N.J., together with a statement of the exact location of the trees.

GENERAL FEEDERS

GRASSHOPPERS (Acrididae)

Michigan. R. Hutson (May 21): Grasshoppers are very abundant and are hatching in most of the infested areas.

Minnesota. A. G. Ruggles (May 28): Grasshoppers are hatching rapidly.. Very little poisoned bait has been used and no damage has been reported.

North Dakota. J. A. Munro (May 19): Hatching in general began about one week earlier than usual

South Dakota. H. C. Severin (May 8): Melanoplus bivittatus Say began hatching on May 1.

Iowa. C. J. Drake (May 28): Grasshoppers are generally distributed in northwestern Iowa. County agents report considerable damage in small grain fields. Poisoned bran mash is being used in several counties.
H. E. Jaques (May 24): Grasshopper eggs are abundant in western Iowa.

Nebraska. M. H. Swenk (May 15): Grasshoppers began hatching early in May in the heavily infested area which includes Keyapaha, Boyd, Rock, Holt, Knox, and Cedar Counties, and the northeastern part of Cherry County and the northern part of Brown. The hatch, which is very heavy, was at its height by May 15 in pastures, hay lands, and along fence rows. Carloads of poisoned bait are being shipped into this section and spread. At the same time, grasshoppers have been hatching in southwestern Nebraska, especially in Hayes County, in abundance.

Kansas. H. R. Bryson (May 24): In some sections of the State young grasshoppers are very abundant; they are moderately abundant at Manhattan.

Oklahoma. C. F. Stiles (May 17): Grasshoppers are moderately abundant.

Texas. F. L. Thomas (May 23): Grasshoppers are very abundant in pasture land and along the levee of the Brazos River bottom in Burleson County.

Wyoming. C. L. Corkins (May 21): Grasshoppers are very abundant.

Colorado. G. M. List (May 26): The infestation will be quite heavy in the

foot-hill areas and in some sections of the eastern plains area. Rather serious local outbreaks are occurring in Rio Blanco and in Montezuma Counties. The infestation is much more general over the entire State than it has been for a number of years.

Idaho. C. Wakeland (May 21): Baiting for grasshopper control is under way in most counties, 600 tons of bait having been shipped in to date.

Utah. G. F. Knowlton (May 8): Grasshopper nymphs are abundant in Box Elder County at Snowville, Lamo, west of Corinne, and at Blue Creek. (May 10): Grasshoppers are becoming more abundant in many parts of Davis and Tooele Counties. Some bait has been applied at Kaysville and Layton, in Davis County. (May 22): Several species are becoming mature. Adults of M. mexicanus Sauss., M. packardi Scudd., Aulocara elliotti Thomas, and Trimerotropis vinculata Scudd., were observed in the Valley from Grantsville to Timpie in Tooele County on May 18. Adults of T. vinculata, M. mexicanus, and A. elliotti, were observed on May 21 in Davis County at Centerville and Farmington. Grasshoppers are causing injury to crops in a number of localities.

C. J. Sorenson (May 26): M. bivittatus, Camnula pellucida Scudd., and M. femur-rubrum DeG. are very abundant over most of the State.

Nevada. Geo. G. Schweis (May 28): Grasshopper damage threatens to be the worst in years.

Arizona. C. D. Lebert (May 21): M. mexicanus is very abundant in Salt River Valley and a poisoning campaign is in full swing. We have mixed and delivered over 91-1/2 tons of bait and are putting it out at the rate of 6-1/2 tons per day. One complete application has been administered in Salt River Valley and we are now going over the ground the second time. A very good kill has been reported from all districts.

California. A. E. Michelbacher (May 22): On this date young nymphs were found in fair numbers. The species is probably M. differentialis Thos.

Canada. Daily Digest (May 28): It is estimated that about 48 percent of the total yield of crops in Western Canada is menaced by grasshoppers, and the present battle to save millions of dollars for agriculturists will be the greatest ever launched.

MORMON CRICKET (Anabrus simplex Hald.)

Wyoming. C. L. Corkins (May 21): An outbreak of the mormon cricket is occurring in Sheridan, Crook, Converse, and Johnson Counties. About 15,000 acres are infested, 10,000 of which are in Sheridan County. The crickets are about one third grown and are doing much damage.

Utah. G. F. Knowlton (April 30): Two outbreaks have been reported from forest areas in Millard County.

COULEE CRICKET (Peranabrus scabricollis Thom.)

Washington. E. J. Newcomer (May 18): Two rather severe outbreaks of the coulee cricket have occurred this spring, one near Pasco, in Franklin County, in the wheat fields, and the other near Wenatchee, Chelan County. With the cooperation of county agents and specialists from the State college, growers are making an effort to stop the invasion.

CUTWORMS (Noctuidae)

New Jersey. R. C. Burdette and B. F. Driggers (May 25): Cutworms have been unusually abundant and have caused considerable damage to newly set plants.

Illinois. W. P. Flint (May 22): Damage from cutworms, mostly the clay-backed (Feltia gladiaria Morr.) have been reported in many cases from spring-plowed clover and sweetclover ground. Fall-plowed ground seems to have almost completely escaped damage.

Tennessee. G. M. Bentley (May): Lycophotia margaritosa saucia Hbn., Agrotis c-nigrum L., A. ypsilon Rott., and F. ducens Walk. are very abundant.

Nebraska. M. H. Swenk (May 15): Inquiries concerning the control of cutworms were received during the first week in May from central and western Nebraska, especially from Greeley, Sherman, Garden, and Box Butte Counties.

Utah. G. F. Knowlton (May 10): Cutworms have caused considerable injury to tomato seedlings in the northern part of Davis County. Plants in a few hotbeds have also been damaged.

California. S. Lockwood (May 1): During the latter part of April the variegated cutworm (L. margaritosa Haw.), and an unidentified species damaged Valencia oranges in one grove in Tulare County. Young wood and blossoms for the 1935 crop were destroyed over about 10 acres and later the worms ate the ripe fruit. From one half to two field boxes per tree were destroyed.

BEET WEBWORM (Loxostege sticticalis L.)

Minnesota. A. G. Ruggles (May 29): Moths of the sugar-beet webworm have been extremely abundant across the central part of the State.

North Dakota. J. A. Munro (May 6): Adults are moderately abundant at Wahpeton, Richland County, and at Fargo, Cass County.

Nebraska. M. H. Swenk (May 15): Reports were received from Furnas and Lincoln Counties the second week in May of a great abundance of first-brood moths in lawns and grasslands, presaging an outbreak in western Nebraska late in May and in June.

Colorado. G. M. List (May 26): Moths are flying in numbers sufficient to indicate a normal infestation in most of the sugar-beet areas. In some of the plain's areas in the eastern part of the State the infestation will be considerably heavier. Here the Russian thistle is one of the important hosts.

ALFALFA WEBWORM (Loxostege commixtalis Walk.)

Kansas. H. R. Bryson (May 24): Moths of the alfalfa webworm (L. commixtalis) are reported as very abundant in pastures, grasslands, and weed patches at Gretna, Phillips County, Garden City, Finney County, Bird City, Cheyenne County, and Hoxie, Sheridan County.

Colorado. G. M. List (May 26): The flight of moths in northern Colorado was rather light this year. However, in the Arkansas Valley the moths occurred in such numbers that the pest will undoubtedly be of considerable economic importance.

GARDEN WEBWORM (Loxostege similalis Guen.)

Iowa. C. J. Drake (May 28): Unusually large numbers of moths have been found in alfalfa fields during the past week, indicating grave danger of a serious webworm infestation in alfalfa.

WHITE GRUBS (Phyllophaga spp.)

Vermont. H. L. Bailey (May 26): Adults are extremely abundant about lights at Montpelier, Washington County.

Maryland. E. N. Cory (May 25): Adults are reported as injurious in Baltimore City and Baltimore County.

Virginia. W. J. Schoene (May 23): White grubs are very abundant; many complaints of injury to shrubs and trees in the Bluegrass Section having been received, also many reports regarding injury to lawns and pastures. The beetles are injuring oak trees and English walnut trees in Prince William County.

Pennsylvania. H. E. Hodgkiss (May 23): Adult emergence started in the central counties on May 4; heavy statewide emergence at peak on May 21; unusually heavy emergence. Records covering the past 16 years indicate that heavy emergence occurred in 1919, 1922, 1925, 1928, 1931, and 1934.

Ohio. T. H. Parks (May 24): May beetles have been unusually abundant, flying about trees. Some reports of oak leaves being cut off have been received.

Illinois. W. P. Flint (May 22): Moderate to rather light flights of June beetles occurred in central and north-central Illinois.

Kentucky. W. C. Price (May 24): The first beetles of the season were observed on May 1. The flight was heavy about Lexington until May 18. Foliage of many oak trees was badly damaged. Larvae have ruined many lawns at Paint Lick and Lancaster, Garrard County, and Lexington, Fayette County.

Wisconsin. C. L. Fluke (May 21): Adults of Brood C completely defoliated oak trees in Lafayette, and Iowa Counties. They are less abundant in surrounding counties.

South Dakota. H. C. Severn (May 9): Many requests have been received for information on control of June beetles working on trees and bushes, sometimes completely defoliating them.

Kansas. H. R. Bryson (May 24): White grubs are reported injuring strawberries near Manhattan.

Alabama. J. M. Robinson (April 30): Brown June beetles are very abundant, eating pecan foliage at Brundidge, Pike County.

Nebraska. M. H. Swenk (May 21): May beetles are very abundant.

WIREWORMS (Elateridae)

New Jersey. R. C. Burdette (May 25): Infestations of wireworms are heavy in some sections and light in other section of northern New Jersey.

California. A. E. Michelbacher (May 22): Wireworms are very abundant around Sutter Creek, Amador County.

A FALSE WIREWORM (Eleodes sp.)

California. C. S. Morley, Kern County Agr. Comn. Monthly News Bull. (May 1): Heavy infestation in parts of the county. The beetles hatched on uncultivated lands and migrated to cultivated fields. Severe damage to cotton and grapes has been reported. This is the first time serious damage has been done by this pest in a number of years.

CEREAL AND FORAGE CROP INSECTS

WHEAT

CHINCH BUG (Blissus leucopterus Say)

Ohio. T. H. Parks (May 24): Bugs left their winter quarters and were flying to small grain fields during the first week of May. We expect serious damage to corn if the drought continues through June.

Illinois. W. P. Flint (May 22): The chinch bug situation is the worst since 1887, and probably worse than at any time in the history of the

State. Young bugs are just beginning to hatch. Owing to the large numbers of overwintering bugs and the severe drought, much small grain has been killed by the old bugs. Unless heavy rains occur within the next 2 weeks, the chinch bug will destroy more than half of the small-grain crop.

Michigan. R. Hutson (May 22): Chinch bugs are moderately abundant.

Minnesota. A. G. Ruggles (May 28): Chinch bugs are very abundant in five townships in Goodhue County.

Iowa. C. J. Drake (May 28): The situation in Iowa is extremely serious, many thousand fields of small grain having been badly injured or totally destroyed. The infestation is extremely heavy in the three most southern tiers of counties.

Missouri. L. Haseman (May 23): Adults are killing barley and oats in places in central Missouri but doing little damage to wheat. This is the worst outbreak in 50 years.

Nebraska. M. H. Swenk (May 15): Chinch bugs came out of hibernation in great numbers in April and May and by the middle of May were concentrated chiefly in the wheat and barley fields, where egg laying was in progress. It is estimated that 30,000 Nebraska farms are threatened with chinch bug injury in June.

Kansas. H. R. Bryson (May 24): Chinch bugs are more abundant at Manhattan than at any time since 1926-27. The adults made their last flight into the wheat, barley, and oat fields on May 5 to 6. In fields where the wheat is thin the old bugs are causing some injury to the plants retarded in growth by the dry weather. Nymphs are coming out in large numbers but most of the eggs have not yet hatched. Sorghums and corn have been retarded in germination and growth, which adds to the seriousness of the situation, as the young plants will be quite small when the migration begins.

Oklahoma. C. F. Stiles (May 17): Chinch bugs are not so numerous as they were at this time last year, and very few complaints have been received.

GREEN BUG (Toxoptera graminum Rond.)

early

Mississippi. C. Lyle (May 23): Specimens were received in May with a report that they were abundant on corn at Sarah, in Tate County.

Nebraska. M. H. Swenk (May 15): The spring grain aphid was seriously injuring wheat in southwestern Nebraska during the latter half of April. Banner and Hitchcock Counties were most heavily infested.

Kansas. H. R. Bryson (May 24): Although the green bug caused considerable injury to wheat and oats during April and the early part of May, the amount of wheat destroyed was not as great as was anticipated. Recent

rains have enabled plants to recover if they were not injured too severely. Reports of injury this month have come from La Cygne, Lebo, Redfield, Coffeyville, Sedgwick, and Wilson.

Oklahoma. C. F. Stiles (May 17): The green bug infestation has been quite severe throughout Noble County and in parts of Payne, Pawnee, Osage, Kay, Grant, Garfield, Kingfisher, and Logan Counties, the heaviest infestation being in Noble County. A questionnaire was sent out by the county agent of Noble County and the returns show that 22,484 acres of wheat are a total loss and 50,592 acres are damaged. The oat crop has been destroyed on 21,840 acres and damaged on 27,000 acres more, which is quite a severe loss to this county. The infestation is at a standstill and parasites are gaining rapidly.

GRAIN APHIDS (*Aphididae*)

Oregon. L. P. Rockwood (May 16): Grain aphids, Macrosiphum granarium Kby. and Rhopalosiphum prunifoliae Fitch, declined rapidly in April. Most of this decline was due to an epidemic of the entomogenous fungus Empusa aphidis, but this disease was aided in the final clean-up by syrphid and coccinellid larvae.

A LEAFHOPPER (*Dikraneura carneola* Stal)

Idaho. R. W. Haegele (May 21): This insect is very common and, in many wheat fields extremely abundant in Gem County. Damage was severe enough in many fields to reduce yields.

RICE STINKBUG (*Solubea pugnax* Fab.)

Texas. F. L. Thomas (May 23): Unusually abundant in Franklin County, destroying some fields of oats.

CORN

SUGARCANE BEETLE (*Euethola rugiceps* Lec.)

Mississippi. C. Lyle (May 23): Growers at Eupora, Webster County, and near Yazoo City, Yazoo County, have recently reported severe injury to young corn.

Tennessee. G. M. Bentley (May): An outbreak of this species, together with Ligyris gibbosus DeG., was observed in corn at Shelbyville, Bedford County, on May 10.

SOUTHERN CORN ROOT WORM (*Diabrotica duodecimpunctata* Fab.)

Georgia. T. L. Bissel (May 26): The budworm is very injurious on corn at Experiment, both on plots that had had a cover crop and on those without cover. First adults of new generation were observed on May 22.

Mississippi. C. Lyle (May 23): A stand of young corn on a farm at Toomsaba, Lauderdale County, was ruined in spots by larvae late in April. Injury was also reported recently by a grower at Louisville, Winston County.

FLEA BEETLES (Halticinae)

Tennessee. G. M. Bentley (May): Epitrix cucumeris Harr. was noted on young corn at Greenfield, May 10.

Iowa. H. E. Jacques (May 24): Corn flea beetles have been a severe pest in corn in Henry County, making replanting necessary in some fields.

Kansas. H. R. Bryson (May 24): Flea beetles caused considerable injury to the leaves of young corn at the agronomy farm at Manhattan.

CORN EAR WORM (Heliothis obsoleta Fab.)

Florida. J. R. Watson (May 21): The corn ear worm is very abundant but no more so than usual.

Alabama. J. M. Robinson (May 22): The corn ear worm is moderately abundant at Auburn; adults observed, and larvae seen on young corn.

SOD WEBWORM (Crambus sp.)

South Carolina. W. C. Nettles (May 24): This insect was injuring corn in Chesterfield County and also damaging young cotton in Oconee County.

Iowa. C. J. Drake (May 28): Sod webworms are unusually abundant and widely distributed. Large numbers of worms have been found in many fields in southern Iowa during the past 2 weeks.

ALFALFA

ALFALFA WEEVIL (Hypera postica Gyll.)

Utah. C. J. Sorenson (May 26): The alfalfa weevil is very abundant in Cache, Box Elder, and Utah Counties.

Nevada. Geo. G. Schweis (May 28): On the whole, damage has been less than for several years past. However, in some section the damage was severe enough to justify control measures. Some airplane dusting was done near Reno with good results.

California. A. E. Michelbacher (May 22): The alfalfa weevil is rather difficult to find throughout most of the Tracy area. Only in the region about Vernalis could the pest be collected in any numbers. There in one field an average of 48 adults and 3 larvae were collected per 100 sweeps, while in another an average of 29 adults and 2 larvae were taken.

CLOVER LEAF WEEVIL (Hypera punctata Fab.)

Maryland. E. N. Cory (May 25): Clover leaf weevils are numerous in Harford and Kent Counties.

PEA APHID (Illinoia pisi Kalt.)

Alabama. J. M. Robinson (May 22): The pea aphid is very abundant. It has destroyed 20 acres of Austrian peas at Vincent, Shelby County.

Mississippi. C. Lyle (May 23): Severe infestations of aphids were reported on English peas by growers at West, in Holmes County, on May 19.

Nebraska. M. H. Swenk (May 15): During the period from April 11 to May 7 there was a severe outbreak in the alfalfa fields in southeastern and southern Nebraska. Alfalfa was so seriously injured that in thousands of fields the first cutting of hay was lost. Myriads of larvae of Hippodamia convergens Guer. were in the fields and by the end of the first week in May had largely gained control of the aphid.

Kansas. H. R. Bryson (May 24): The pea aphid has been very abundant in alfalfa in the eastern half of the State. The infestations were quite general over the fields and the first crop was considerably injured. By May 7 practically all of the aphids had disappeared, owing to the control effected by H. convergens.

Wyoming. C. L. Corkins (May 21): The pea aphid has done much damage in southeastern Wyoming, but is now under fairly good control.

Colorado. G. M. List (May 26): The outbreak on alfalfa has subsided. Control has been due largely to the work of H. convergens.

Oregon. L. P. Rockwood (May 16): The aphid epidemic, which was at its peak in vetch and Austrian pea fields late in March, has been reduced below the average abundance for this season of the year. This reduction was initiated by an epidemic of the entomogenous fungus Empusa aphidis, which killed more than 90 percent of the aphids. The fungous disease reached its peak in early fall-sown vetch and pea fields about April 10, and in late fall-sown and spring-sown fields late in April. The few aphids surviving the disease were further reduced by predators, particularly the syrphids (Syrphus torvus O. S., S. opinator O. S.) and Lasiophthicus pyrastris L. Vetch and Austrian peas showed some recovery.

A HARVESTER ANT (Pogonomyrmex occidentalis Cress.)

Nebraska. M. H. Swenk (May 15): The mound-building prairie ant was reported damaging alfalfa in Dundy County the third week in April.

FRUIT INSECTS

APPLE

CODLING MOTH (Carpocapsa pomonella L.)

- New York. N. Y. State Col. Agr. News Letter (May): The winter mortality of larvae was high in many areas in the western New York fruit belt, but low in the lake zone and in the Youngstown area in Niagara County. Even in areas where the mortality was highest, there was a considerable survival of larvae below the snow line. The first catch of moths in light traps in the Rome orchard at Geneva was 4 days earlier and nine times heavier than the first catch in 1933. First adults observed in Hudson River Valley on May 17; larvae and pupae in Ulster County, May 10.
- Delaware. L. S. Stearns (May 22): Eighty percent of the overwintered larvae had pupated by May 19; first emergence of spring brood, May 7.
- Pennsylvania. H. E. Hodgkiss (May 23): The following numbers of adults were caught in bait pails in Franklin County on the dates indicated: May 14, 14; May 15-18, none; May 19, 62; May 20, 372; May 21, 343.
H. N. Worthley (May 28): The first moths emerged on the night of May 10, when the earliest varieties of apples were just ready for the petal-fall spray. Abnormally high evening temperatures produced heavy flight of moths on the evenings of May 19, 20, and 21, bait pails averaging over 70 moths on the evening of May 20.
- Virginia. W. J. Schoene (May 23): Adults are very numerous in the Roanoke district, where large numbers emerged between May 8 and 15. Many worms were entering the apples on May 17, 18, and 19.
- Georgia. C. H. Alden (May 21): The codling moth is scarce at Cornelia. There has been very little egg laying by spring-brood moths.
- Ohio. T. H. Parks (May 24): Emergence of adults began in Lawrence County on May 5 and at Columbus on May 13, Wooster May 17, and Oak Harbor on May 20. Although not more than the normal number overwintered, the spring has been very favorable for egg laying.
- Illinois. W. P. Flint (May 22): Conditions this spring have been highly favorable to the codling moth, and first-brood adults have emerged in unusually large numbers and are more closely bunched than usual. The peak of emergence occurred in southern Illinois about May 12.
- Missouri. L. Haseman (May 23): The peak of emergence of first-brood codling moths is past in southern Missouri. In the central and northern parts of the State emergence reached its peak this week. Worms began entering the apples about May 17.
- Nebraska. M. H. Swenk (May 21): The codling moth is moderately abundant in the southeastern part of the State.

- Kansas. H. R. Bryson (May 24): Very abundant in Doniphan County, in north-eastern Kansas, where the first moth was taken on May 7. First moths were taken on May 3 in the vicinity of Oxford, in the Arkansas River Valley.
- Colorado. Geo. M. List (May 26): The codling moth mortality was very low during the winter. The season is bringing the moths out earlier than we have ever recorded. At Grand Junction, Mesa County, the first moths were taken in traps on April 15. By April 25 the catches indicated that the peak of emergence of the spring-brood moths was approaching. J. H. Newton reported that the first moths were taken in traps at Paonia, Delta County, on April 21 and that a large number was taken during the last days of the month. In the Fort Collins district the first moths were taken in traps on May 15 and large numbers were taken on May 20 and 21.
- Idaho. R. W. Haegle (May 21): The codling moth is very abundant. Worms have been entering fruit since about May 1 in the southwestern part of Idaho.
- Utah. C. J. Sorenson (May 26): The codling moth is very abundant in Cache, Davis, and Utah Counties.
- Washington. E. J. Newcomer (May 18): Temperatures have been more normal in Washington during May than in April, and only slight injury has occurred to the host fruits, apples and pears. What may prove to be the maximum emergence took place from May 10 to 14.

EASTERN TENT CATERPILLAR (Malacosoma americana Fab.)

- Northeastern U.S. J. V. Schaffner, Jr., (May 19 - 25): On May 12 C. W. Collins noted very heavy infestations in the northern part of Delaware and the eastern part of Pennsylvania. The first hatching noted was on April 17 at Woodstock, Conn., and also at Melrose, Mass. On April 21 J. E. R. Holbrook examined 51 egg clusters in the field at Melrose and found 50 of them hatching and 27 densely covered with larvae. Infestation is generally heavy throughout Massachusetts, the northeastern part of Connecticut, and the southern parts of Vermont, New Hampshire, and Maine. Through the northeastern part of Vermont and the northern part of New Hampshire the tents are very scarce, and one can travel many miles without seeing any. At Lyme, N.H., some wild cherry trees were examined and several egg clusters were found which had failed to hatch.
- Maine. H. B. Peirson (May 20): The eastern tent caterpillar overwintered well. Hatching started April 30 at Augusta and was apparently normal. Larvae are very abundant and from Waterville south are more abundant than in 1933.
- Vermont. H. L. Bailey (May 26): Although very abundant in the southern part of the State, outside the mountain area, the tent caterpillar is

scarce elsewhere, indicating that in the colder sections eggs were killed.

Massachusetts. A. I. Bourne (May 25): Much more abundant this year than in 1933, particularly in the eastern part of the State.

Connecticut. W. E. Britton (May 23): Nests are very abundant on apple and wild cherry throughout the State and particularly in Litchfield County. They are perhaps least abundant near the coast.

Rhode Island. A. E. Stone (May 28): Tent caterpillars are very abundant.

New York. R. E. Horsey (May 26): The eastern tent caterpillar is fairly common at Rochester.

H. C. Hallock (May 6): Observed in unprecedented abundance in orchards and on wild cherry in the central part of Dutchess County.

N.Y. State Col. Agr. News Letter (May 21): The tent caterpillar is more abundant than usual in the Hudson River Valley; the infestation in Suffolk County is the worse in recent years; caterpillars were full grown and dispersing in Orange County; and are more numerous in Wayne County than they have been for 2 years.

New Jersey. C. H. Hadley (May 15): Unusually abundant in the vicinity of Moorestown and at other points in southern New Jersey. Many webs are seen, not only on wild cherry but on various other trees, such as apple, peach, plum, and shade trees, and also on wild growth in vacant fields.

Pennsylvania. L. B. Parker (May 27): The eastern tent caterpillar is sufficiently abundant for early and total defoliation of large wild cherry trees in the vicinity of Philadelphia.

H. E. Hodgkiss (May 23): Very heavy statewide infestation.

H. N. Worthley (May 28): Caterpillars are now full grown in central Pennsylvania and are seeking cocooning quarters.

Delaware. L. A. Stearns (May 22): Brood near maturity; injury has been observed.

Maryland. E. N. Cory (May 25): The eastern tent caterpillar is very abundant.

Virginia. W. J. Schoene (May 23): The eastern tent caterpillar is generally present but not so numerous as last year.

Tennessee. G. M. Bentley (May): Considerable damage to wild cherry and apple throughout the eastern part of the State.

FRUIT TREE LEAF ROLLER (Cacoecia argyrospila Walk.)

Colorado. G. M. List (May 26): More serious than for a number of years.

Seriously injuring fruit trees in the Denver and Littleton sections, and being reported from practically all fruit-growing sections, with the exception of Mesa County.

APHIDS (Aphidae)

Massachusetts. A. I. Bourne (May 25): Aphids are less abundant than normal and no serious outbreaks have been observed.

Connecticut. P. Garman (May 22): The rosy apple aphid (Anuraphis roseus Baker) is scarce or absent; have seen no orchard where the species is abundant. The apple aphid (Aphis pomi DeG.) shows a slight increase over last month; enemies are abundant.

New York. P. J. Parrot (May 22): Grain aphids (Rhopalosiphum prunifoliae Fitch) are moderately abundant. The rosy apple aphid is scarce.

Pennsylvania. H. N. Worthley (May 28): Most of the apple aphids have now left the apple trees. Only occasionally can a "rosette" of rosy aphids be found.

Maryland. E. N. Cory (May 25): The rosy apple aphid is scarce.

Virginia. W. J. Schoene (May 23): The fruit aphids, R. prunifoliae, A. pomi, and A. roseus, are present in apple orchards in very small numbers. In some orchards colonies of the rosy have been developed to large size, perhaps owing to the warm dry weather, but no injury is expected.

Georgia. C. H. Alden (May 21): The rosy apple aphid and the green apple aphid are moderately abundant at Cornelia.

Michigan. R. Hutson (May 22): Fruit aphids are scarce.

Alabama. J. M. Robinson (May 22): The apple aphid was scarce to moderately abundant on apple trees at Auburn and Birmingham on May 4.

Kansas. H. R. Bryson (May 24): The apple grain aphid is very abundant in the vicinity of Oxford, in the Arkansas River Valley.

Idaho. C. Wakeland (May 21): A. pomi is very abundant all over the State.

TARNISHED PLANT BUG (Lygus pratensis L.)

Washington. E. J. Newcomer (May 18): Damage to fruit in the Yakima Valley has been especially severe. In many orchards the crops of apples, pears, and peaches have been materially reduced, as the fruit buds were so severely injured that they dropped off.

PEACH

ORIENTAL FRUIT MOTH (Grapholitha molesta Busck)

Connecticut. P. Garman (May 22): Eggs were observed in peach orchards in New Haven County.

Delaware. L. A. Stearns (May 22): Ninety-six percent of the overwintered larvae had pupated by May 19; first emergence of spring brood, April 26; peak of emergence, May 7.

Virginia. W. J. Schoene (May 23): Very numerous around Roanoke from April 25 to May 8.

Ohio. T. H. Parks (May 22): The full-grown larvae are leaving the terminals at Columbus.

Illinois. W. P. Flint (May 22): More abundant than in 1933. First-brood larvae are practically full grown.

Kentucky. W. A. Price (May 24): Inquiries received from Bowling Green and Louisville.

Georgia. C. H. Alden (May 21): Scarce at Cornelia; cold weather prevented egg laying by spring-brood moths.

Wm. P. Yetter (May 12): Unfavorable weather conditions in March, April, and May caused an almost complete cessation of spring-brood activity and, unless this pest becomes more firmly established later in the season, injury to the peach crop will be light.

Mississippi. C. Lyle (May 23): Severe injury to peach twigs has recently been reported from Attala, Humphreys, and Sunflower Counties.

PLUM CURCULIO (Conotrachelus nenuphar Hbst.)

Massachusetts. A. I. Bourne (May 25): The first beetles were observed on apple trees at Amherst on May 18 or 19. Since that time they have been moderately abundant.

New York. N.Y. State Col. Agr. News Letter (May 21): Emergence delayed in Hudson River Valley by cold weather but higher temperatures brought out considerable numbers on May 17 to 19. A few punctures found in Orange County; not much activity in Dutchess County; emerging slowly in Ulster County; first cutting and feeding punctures May 17; first curculio shaken from tree in Essex County on May 14.

Delaware. L. A. Stearns (May 22): Continuous emergence from hibernation from April 20 to date; peak of emergence on May 6, 7, and 8.

Michigan. R. Hutson (May 22): The plum curculio is moderately abundant.

Illinois. W. P. Flint (May 22): Reported as scarce in southern Illinois.

Georgia. O. I. Snapp (May 21): Full-grown larvae began to leave peach drops at Fort Valley on May 7, 8 days later than in 1933. The peak of first-brood emergence of larvae occurred on May 12. No pupation has taken place. The cool, rainy weather is delaying pupation, and this may cause the second brood to be light or may prevent it entirely. The general infestation increased during the month and is heavier than average. Peach drops are very wormy in many orchards, and the alarm of growers over the increased infestation is resulting in more diligent enforcement of control measures.

C. H. Alden (May 21): The plum curculio is moderately abundant at Cornelia; about 5 percent of the drops being infested with larvae.

Missouri. L. Haseman (May 23): Plum curculio ovipositing at Columbia since May 1; some larvae at pit of green fruit; not much new injury since May 20.

Alabama. J. M. Robinson (May 22): Moderately abundant on wild plum and unsprayed fruits at Auburn.

GREEN PEACH APHID (Myzus persicae Sulz.)

Ohio. E. W. Mendenhall (May 23): Heavy infestation on Spiraea vanhouttei.

Kansas. H. R. Bryson (May 24): Heavy infestation reported in the Arkansas River Valley.

PLUM

APHIDS (Aphidae)

Utah. G. F. Knowlton (May 22): Two species of aphids are heavily attacking plums at Roy; one species tightly curling 85 percent of the leaves on some young trees.

Idaho. R. W. Haegerle (May 21): Hyalopterus arundinis Fab. is common in many prune orchards in southwestern Idaho and is rapidly increasing to damaging numbers.

C. Wakeland (May 21): The thistle aphid (Anuraphis cardui L.) is very abundant on prunes in southwestern Idaho.

WHITE APPLE LEAFHOPPER (Typhlocyba pomaria McAtee)

Idaho. R. W. Haegerle (May 21): Present in injurious numbers in a few prune orchards in southwestern Idaho.

WESTERN SPOTTED CUCUMBER BEETLE (Diabrotica soror Lec.)

California. F. H. Wymore (May 17): Activated by a rather sudden rise in temperature to 102° F., the first-brood beetles seriously attacked the

Derby Royal and Stewart apricots and damaged as high as 50 percent of the fruit in some orchards.

GRAPE

GRAPE LEAFHOPPER (Erythroneura comes Say)

New York. P. J. Parrot (May 22): Grape leafhoppers are abundant in grape districts in the western part of the State.

California. S. Lockwood (May 1): The grape leafhopper is far more than normally abundant in the Napa Valley, and in the San Joaquin Valley continues to be more of a pest than it has been for years, even in 1930, the worst outbreak ever previously recorded.

M. L. Jones (May 11): Madera County reports that the grape leafhopper was severe generally on grapes in April. In Kings County the leafhopper severely infested 13,956 acres of grapes in April. In Kern County the leafhopper was reported as moderately abundant during April.

WESTERN GRAPE ROOT WORM (Adoxus obscurus L.)

California. S. Lockwood (May 1): On April 28 the grape root worm was observed in damaging numbers on grape near Saint Helena.

EIGHT-SPOTTED FORESTER (Alypia octomaculata Fab.)

Kansas. H. R. Bryson (May 24): Larvae of the 8-spotted forester were reported attacking the leaves of grapes at Sedan. This insect was doing slight damage at Manhattan to unsprayed grapes during the first 2 weeks of May.

CURRENT

CURRENT APHID (Myzus ribis L.)

Ohio. E. W. Mendenhall (May 23): The current aphid is very abundant and is curling the terminal leaves of currants in home gardens.

IMPORTED CURRENT WORM (Pteronidea ribesii Scop.)

Kansas. H. R. Bryson (May 24): The imported current sawfly is moderately abundant on gooseberries and currants at Manhattan.

CITRUS

GREEN CITRUS APHID (Aphis spiraecola Patch)

Florida. J. R. Watson (May 21): The green citrus aphids were very scarce the past year in the main citrus belt but have been more numerous than ever on Satsuma trees in Alachua County during the last month.

BLACK CITRUS APHID (Toxoptera aurantiae Boyer)

California. M. L. Jones (May 11): The black citrus aphid is reported as generally severe on oranges.

AVOCADO

LATANIA SCALE (Aspidiotus lataniae Sign.)

California. H. J. Ryan (May 24): The Latania scale has increased considerably in avocado plantings in Los Angeles County, the districts nearer the coast being most severely infested.

TRUCK & CROP INSECTS

SPOTTED CUCUMBER BEETLE (Diabrotica duodecimpunctata Fab.)

Virginia. L. W. Brannon (April 23): On April 23 beetles were observed feeding on snap beans in the vicinity of Norfolk for the first time during the season.

Alabama. J. M. Robinson (May 22): Very abundant on garden vegetables and flower gardens in Auburn.

Kansas. H. R. Bryson (May 24): First adults were taken at Manhattan on May 3.

STRIPED CUCUMBER BEETLE (Diabrotica vittata Fab.)

Virginia. L. W. Brannon (May 10): Adults have been observed causing some injury to young snap beans growing near squash or cucumbers at Norfolk.

Oklahoma. C. F. Stiles (May 17): Appearing in large numbers in the southern part of the State.

FLEA BEETLES (Halticinae)

New Jersey. R. C. Burdette (May 25): Numerous on tomato and eggplant in the coldframes and in the field.

Virginia. L. W. Brannon (April 25): Adults of Systema taeniata Say were observed feeding on young snap beans in the Norfolk area on April 25.

Mississippi. C. Lyle (May 23): Flea beetles, identified by J. M. Langston as S. taeniata, were reported very abundant in spots in cotton fields near Fulton and Dorsey, Itawamba County, on May 15, and reported by a County Agent at Houston, in Chickasaw County, on May 18, as abundant on soybeans and other plants.

Nebraska. M. H. Swenk (May 15): The western cabbage flea beetle (Phyllotreta pusilla Horn) was injuring cabbage and radishes in Hooker County during the third week in April.

FALSE CHINCH BUG (Nysius ericae Schill.)

Texas. F. L. Thomas (May 23): A number of complaints have been received from Milam, Robertson, Burleson, and Bell Counties. In all cases were attacking cotton near turn rows or in fields where weeds had occurred.

SOWBUGS (Oniscidae)

South Carolina. W. C. Nettles (May 24): Sowbugs were observed injuring roots of ornamentals at Sumter.

Alabama. J. M. Robinson (May 22): Sowbugs are very abundant in gardens at Birmingham.

Mississippi. C. Lyle (May 23): A correspondent at Shuqualak, Noxubee County, recently reported that pillbugs were abundant in his sweetpotato bed.

POTATO AND TOMATO

COLORADO POTATO BEETLE (Lepitinotarsa decemlineata Say)

South Carolina. F. Sherman (May 24): Severe damage has been caused to tomatoes at Walhalla. Damage heavier than usual in the western part of the State.

Florida. J. R. Watson (May 21): Moderately abundant in the Hastings potato district.

G. B. Merrill (May 23): Moderately abundant at La Crosse, Santa Fe, and Hague, in Alachua County. Potatoes are generally mature and are being dug before the beetles can become very abundant on the vines.

Missouri. L. Haseman (May 23): Colorado potato beetles have been ovipositing since May 10 and some eggs have hatched at Columbia. Infestation not so heavy as usual.

Nebraska. M. H. Swenk (May 21): Beetle very abundant over the State.

Kansas. H. R. Bryson (May 24): First observed on plants at Manhattan on May 8 and 9.

Oklahoma. C. F. Stiles (May 17): The first brood is seriously injuring potatoes.

Idaho. R. W. Haegele (May 21): Early potatoes are being dusted in Canyon County, in the southwestern part of the State.

POTATO FLEA BEETLE (Epitrix cucumeris Harr.)

Connecticut. N. Turner (May 22): The potato flea beetle is about as abundant as usual; many adults observed on potatoes and weeds.

GRAY BLISTER BEETLE (Epicauta cinerea Forst.)

Florida. J. R. Watson (May 21): Blister beetles, particularly E. cinerea, has been troublesome on tomatoes and potatoes in some sections.

LEAF-FOOTED BUG (Leptoglossus phyllopus L.)

South Carolina. F. Sherman (May 24): More abundant than usual on Irish potatoes at Clemson College. The wilting of plant tops is appreciable.

Mississippi. C. Lyle (May 23): Specimens collected from Irish potato plants were received from Meadville, Franklin County, on May 7. No injury was reported.

Texas. F. L. Thomas (May 23): L. phyllopus was reported as attacking artichoke and roses in local gardens at College Station.

TOMATO PSYLLID (Paratrioza cockerelli Sulc.)

South Dakota. H. C. Severn (May 9): This tomato pest was found in South Dakota greenhouses for the first time.

Colorado. G. M. List (May 26): The tomato psyllid appeared in considerable numbers in Mesa County the latter part of April. The indications are that the infestation will be serious enough to cause considerable loss to the early potatoes. On May 22 eggs, all freshly laid, were found to be quite numerous on tomatoes near Fort Collins. This is earlier than we usually find them. None have hatched yet.

Utah. G. F. Knowlton (May 22): Adults of the first generation are maturing on teavine and matrimony vine at Magna and at Salt Lake City.

BEANS

MEXICAN BEAN BEETLE (Epilachna corrupta Muls.)

New Jersey. R. C. Burdette (May 25): The Mexican bean beetle seems to have been hard hit by the cold winter.

Maryland. E. N. Cory (May 25): Adults first recorded in Prince Georges County on May 19.

Virginia. L. W. Brannon (April 26): The first Mexican bean beetle of the season was found on April 26 feeding on snap beans that were just coming up in the Norfolk trucking section. This is the earliest record of emergence in this area since 1929. The first eggs were deposited in the insectary on May 11 by a beetle taken in the field on May 7. These eggs hatched in the insectary on May 20, the first hatching being 9 days later than in 1933.

Georgia. T. L. Bissell (May 9): The first beetle of the season was observed on beans on May 9, at Experiment, but it had done no feeding. No serious injury had been observed by May 26.

South Carolina. F. Sherman (May 24): Great numbers of the Mexican bean beetle are now invading fields near Clemson College.

Florida. J. R. Watson (May 21): There have been no reports of the Mexican bean beetle for 2 years.

Alabama. J. M. Robinson (May 22): Adults are very abundant on beans at Auburn.

BEAN LEAF BEETLE (Cerotoma trifurcata Forst.)

Virginia. L. W. Brannon (May 5): At Norfolk the first beetles of the season were observed feeding on snap beans on May 5.

South Carolina. F. Sherman (May 24): More abundant and destructive, over the State than usual.

Georgia. T. L. Bissell (May 3): Beetles have done much damage by feeding on the leaves of beans at Experiment.

Tennessee. G. M. Bentley (May): Heavy damage to early beans was reported in Knox County; and to shipping beans at Greenfield on May 21.

CABBAGE

IMPORTED CABBAGE BUTTERFLY (Ascia rapae L.)

Maryland. E. N. Cory (May 25): The imported cabbage butterfly is reported numerous in Cecil County.

South Dakota. H. C. Severin (May 8): The first adult was seen on April 15.

Missouri. L. Haseman (May 23): Early cabbage is being severely attacked at Columbia.

Tennessee. G. M. Bentley (May): Generally abundant over the State.

DIAMOND-BACK MOTH (Plutella maculipennis Curt.)

South Carolina. W. C. Nettles (May 24): Severe damage to cabbage in trucking districts from Charleston to Beaufort is reported; adults are abundant; and damage is now in excess of that by other larvae.

CABBAGE APHID (Brevicoryne brassicae L.)

New Jersey. R. C. Burdette (May 25): Abundant in certain sections of the State.

Kansas. H. R. Bryson (May 24): Very abundant on radishes about May 1. On May 14 no aphids were to be found, owing to the activity of ladybird beetles.

HARLEQUIN BUG (Murgantia histrionica Hahn)

Virginia. L. W. Brannon (May 2): More abundant than last year. Adults have been observed feeding in fields of crucifers in the Norfolk area since about the middle of April. The first eggs of the season were observed in the field on April 24. Emergence and oviposition about normal. The eggs deposited on April 24 hatched on May 7.

South Carolina. C. W. Nettles (May 24): Apparently less numerous than usual.

Kentucky. W. A. Price (May 24): Specimens have been received during the past 3 weeks from Debord, Pineville, and Middlesboro.

CABBAGE MAGGOT (Hylemia brassicae Bouche)

Pennsylvania. H. N. Worthley (May 28): Eggs were found the first week in May and are more common than in recent years.

ASPARAGUS

ASPARAGUS BEETLE (Crioceris asparagi L.)

New Jersey. R. C. Burdette (May 25): Infestation by the asparagus beetle is unusually heavy this year.

SPOTTED ASPARAGUS BEETLE (Crioceris duodecimpunctata L.)

Iowa. H. E. Jaques (May 24): The 12-spotted asparagus beetle has made its first appearance in Henry County this spring.

A WEEVIL (Eurymycter fasciatus Oliv.)

Utah. G. F. Knowlton (April 26): Weevil collected at Riverheights, Logan, on April 21 by T. O. Thatcher, reported as having been found inside asparagus stem.

CELERY

FLOWER THRIPS (Frankliniella tritici Fitch)

California. S. F. Bailey (May 4): Sixty acres of celery near Santa Ana reported to be seriously damaged by the thrips feeding about the crown at the base of the stalks. The plants are about one third grown.

CARROTS

CARROT WEEVIL (Listronotus latiusculus Boh.)

Michigan. R. Hutson (May 21): During the last few days we have had considerable trouble in one district in Kalamazoo County. Although this insect has been recorded from Michigan, this is the first recent outbreak.

SPINACH

SPINACH FLEA BEETLE (Disonycha xanthomelaena Dalm.)

Nebraska. M. H. Swenk (May 15): During the week of April 16 specimens were sent in by a Lancaster County correspondent. He reported this insect as having destroyed a patch of spinach.

STRAWBERRY

STRAWBERRY WEEVIL (Anthonomus signatus Say)

Vermont. H. L. Bailey (May 26): Very numerous and destructive in strawberry beds at Hyde Park and other places in Lamoille County.

Kansas. H. R. Bryson (May 24): Reported for the first time this year from Doniphan County, where it is causing considerable injury. Complete destruction of the crop on 4 acres and partial destruction on 2 more acres

STRAWBERRY ROOT WEEVILS (Brachyrhinus spp.)

Utah. G. F. Knowlton (May 7): The strawberry root weevil (B. ovatus Fab.) and the rough strawberry weevil (B. rugosostriatus Goeze) are damaging strawberry plants at Pleasant Grove, Millville, and Logan.

FULLER'S ROSE BEETLE (Asynonychus godmani Crotch)

California. E. O. Essig (April 30): Larvae are burrowing into the crown and completely ruining a few strawberry plants at Hayward. This work is similar to that of the strawberry root weevil, which does not occur here.

IMBRICATED SNOUT BEETLE (Epicaerus imbricatus Say)

Kansas. H. R. Dryson (May 24): This insect is reported as having caused rather severe damage to foliage on one patch of young strawberries at Wathena.

A FLEA BEETLE (Haltica litigata Fall.)

Mississippi. C. Lyle (May 23): A correspondent in Leflore County sent on May 12 specimens of Haltica sp., probably litigata, with the following statement: "Godetias were doing well and were about 8 inches high when these beetles suddenly arrived and destroyed practically all of the small plants. They now seem to leave for a short time but return in hundreds." A grower in Lee County sent specimens on May 18 of the species, reporting that millions of them were present in a small area in his soybean field.

Texas. E. V. Walter (April 13): Flea beetles found to be rather seriously injuring a small area in a strawberry field at Poteet recently. These flea beetles are very abundant on weeds, particularly the evening primrose, and are entering the strawberry fields and gardens from these weed patches.

STRAWBERRY LEAF ROLLER (Ancylis comptana Froel.)

Kansas. H. R. Bryson (May 24): Very abundant and causing rather steady progressive damage over a considerable area in the vicinity of Wathena; also reported from Hutchinson and Eudora.

Utah. G. F. Knowlton (May 7): Leafrollers are now rolling leaves on strawberry plants at Logan, Millville, and College Ward.

STRAWBERRY CROWN BORER (Tyloderma fragariae Riley)

Kansas. H. R. Bryson (May 24): The strawberry crown borer is reported as having destroyed 18,000 young plants on one farm at Wathena.

STRAWBERRY ROOT APHID (Aphis forbesi Weed)

Kansas. H. R. Dryson (May 24): Rather heavy infestations found in spotted areas.

THRIPS (Thysanoptera)

Minnesota. A. G. Ruggles (May 28): A species of thrips (unknown) is doing severe

damage to strawberry at Red Wing, Goodhue County. It works in the blossoms, causing gnarly berries to be formed.

CYCLAMEN MITE (Tarsonemus pallidus Bks.)

New York. P. J. Chapman, N. Y. State Col. Agr. News Letter (May 21): Considerable damage to strawberry plantings in the northern part of Dutchess and the southern part of Columbia Counties.

BEETS

BEET LEAFHOPPER (Eutettix tenellus Bak.)

Utah. G. F. Knowlton (May 22): Becoming dangerously abundant in most northern sugar beet fields. This, together with shortage of irrigation water, indicates probability of severe curly-top damage in many localities.

SPINACH LEAF MINER (Pegomya hyoscyami Panz.)

Utah. G. F. Knowlton (May 22): Damaging beets at Ogden, Taylor, Hot Springs, Syracuse, and West Point.

TOBACCO

TOBACCO BUDWORM (Heliothis virescens Fab.)

Florida. F. S. Chamberlin (May 5): Tobacco budworms are very abundant this season in tobacco in Gadsden County.

SOUTHERN GREEN STINK BUG (Nezara viridula L.)

Florida. F. S. Chamberlin (May 24): Quite abundant and causing moderate damage to tobacco in Gadsden County.

F O R E S T A N D S H A D E - T R E E I N S E C T S

ASIATIC BEETLE (Anomala orientalis Waterh.)

Connecticut. W. E. Dritton (May 23): Grubs from a number of premises in New Haven and West Haven have been brought to the Experiment station this spring. Evidently they survived the subzero temperatures of last winter.

New York. C. H. Hadley (April): The survey diggings at Jericho show an average of 14 larvae per square foot, which is about the same as in the spring of 1933. The range in abundance this spring has been from none to 77 grubs per square foot. At Jericho there has been some spread in the known area of heavy infestation, as another lawn showing about 1 acre of ruined turf was brought to our attention this spring. This lawn is located northwest of Jericho and nearly a mile from the older infestations. In Westchester County the abundance in the older infested area in the southern part of the county, extending from New Rochelle and Mount Vernon on the south to White Plains on the north, shows very little change from last year. This season additional

infestations in the vicinity of Ossining, where there is considerable lawn destruction, were brought to our attention.

ASIATIC GARDEN BEETLE (Autoserica castanea Arrow)

Connecticut. R. B. Friend (May 23): Larvae were collected in two localities in New Haven.

New York. C. H. Hadley (April): The survey diggings at Jericho show an average of 29 Asiatic garden beetle larvae per square foot, with a range of 1 to 60. This indicates that they are a little more numerous than in the spring of 1933. The beetle is apparently more numerous now at Locust Valley than at Jericho. During April new infestations were discovered at Syosset in the extreme eastern part of Nassau County and on the grounds of the New York State School of Applied Agriculture, east of Farmingdale, in Suffolk County. The Westchester and Bronx County infestations are about the same as last season, except that the infestation has become considerably heavier in the vicinity of Yonkers. Lawns in the northern part of Yonkers are showing sufficient injury to necessitate rebuilding.

JAPANESE BEETLE (Popillia japonica Newm.)

New Jersey. C. H. Hadley (April): Winter mortality this year was no greater than that of other years, despite the unusually low temperature of February. A rather general reduction of the population, as compared with that represented at this time last year, is indicated in the older established infestations. In the newer infestations an increase is indicated. As a result, the population of the coming summer may be expected to be, in general, about equal to that of last summer, with more or less striking regional or local differences.

ROOT WEEVILS (Brachyrhinus spp.)

Vermont. H. L. Bailey (May 26): B. sulcatus Fab. was found to be very abundant in soil about evening primrose and other plants at Montpelier on May 2.

Connecticut. W. E. Britton (May 23): Heavy damage by B. ovatus L. occurred in a nursery at Rockhill; 75,000 young hemlocks and several hundred thousand blue spruce were destroyed. The soil was heavily infested with the small white grubs which chew the bark off the roots of the seedlings.

GYPSY MOTH (Porthetria dispar L.)

Maine. H. B. Peirson (May 20): Hatching started on May 7 in York County.

Rhode Island. A. E. Stene (May 28*): The gypsy moth is hatching well in the northern part of the State. It is scarcer in some places in the southern part of the State, where it was abundant last year.

BROWN-TAIL MOTH (Nygmia phaeorrhoea Don.)

Maine. H. B. Peirson (May 20): The winter mortality was very high, resulting in almost complete killing of the species.

CANKER WORMS (Geometridae)

Massachusetts. J. V. Schaffner, Jr. (May 19): A severe infestation of Paleacrita vernata Peck was observed on elms at Pine Banks Park by C. W. Collins and C. E. Hood. On May 8 first-instar larvae were very abundant on the foliage just opening.

Connecticut. W. E. Britton (May 23): Alsophila pometaria Harr. is prevalent locally on deciduous woodland and fruit trees, particularly in Fairfield and New Haven Counties.

New York. E. P. Felt (May 22): A. pometaria is now partly grown and very prevalent in southeastern New York, with every indication that defoliation will be widespread. The outbreak may be more severe than last year.

Rhode Island. A. E. Stene (May 28): Canker worms are abundant in a few places.

Kansas. H. R. Bryson (May 24): Canker worms have done considerable injury to hackberry, elm, and unsprayed apple trees at Lawrence. There was considerable injury to elms, hackberry, and honey locust at Manhattan, despite the fact that the trees were banded, as it was impossible to maintain sticky bands during the entire period of emergence. Canker worms have also been reported causing injury at Chamute, Scandia, and Oxford. At the latter place they were reported to be very abundant on apple and maples.

FOREST TENT CATERPILLAR (Malacosoma disstria Hbn.)

Colorado. G. M. List (May 26): The forest tent caterpillar is occurring in epidemic form in a number of localities, the heaviest infestation probably being in the northern part of the State, where many unsprayed poplar and ash trees are being seriously defoliated. Some injury is occurring at Grand Junction.

BAGWORM (Thyridopteryx ephemeraeformis Haw.)

Ohio. E. W. Mendenhall (May 16): Bagworms are very plentiful on several species of shade trees, including arborvitae. Indications are that they will be plentiful in the southern and southwestern parts of the State. Not many are being destroyed by natural enemies.

PERIODICAL CICADA (Magicicada septendecim L.)

Maryland. W. R. Walton (May 29): A nymph was collected on May 21, on my lawn at 15 Maple Avenue, Hyattsville, and an adult emerged on May 22. A shell was found at the same place on May 29.

J. A. Hyslop (May 22): An adult, the only one I have seen this year was collected near my home at Avenel (Silver Spring). A large colony of Brood X is in the ground at this place and this may be an accelerated individual of that Brood.

ASH

A SAWFLY (Tomostethus multicinctus Roh.)

Maryland. G. S. Langford (May 25): An ash sawfly, probably T. multicinctus Roh., was very abundant throughout the central part of Prince Georges County this spring. By May 17 many white ash trees were completely defoliated. Observations on the development of the insect showed that practically all overwintering individuals pupated between April 1 and April 20. Adults were abundant between April 22 and May 5. Hatching began on May 6. About 4 percent of the overwintering larvae were being parasitized by an ichneumonid wasp.

BEECH

BEECH SCALE (Cryptococcus fagi Baer.)

Maine, New Hampshire, Massachusetts. J. V. Schaffner, Jr. (May 19): R. C. Brown reports that in eastern Massachusetts and southern New Hampshire practically no mortality can be attributed to the severe winter. A superficial examination in the vicinity of Liberty, Me., indicates practically complete mortality above the snow line in certain sections, while in other nearby areas the insect does not seem to have been much affected by the severe winter.

BOXELDER

BOXELDER LEAF ROLLER (Gracilaria negundella Chamb.)

Colorado. G. M. List (May 26): The boxelder leaf roller is quite abundant in the Weld County district. Many boxelder trees are largely defoliated and elms are being considerably injured.

ELM

ELM LEAF BEETLE (Galerucella xanthomelaena Schr.)

Massachusetts. J. V. Schaffner, Jr. (May 25): Adults were actively issuing from their hibernation quarters the first week of May, particularly during the hot days of the latter part of the week. The first egg masses were noted on May 16 at Woburn. Between May 17 and 24 the beetles were emerging in abundance in the eastern part of the State.

Connecticut. W. E. Britton (May 23): This insect is present in large numbers in some houses at Westport and Weston. Adults are now feeding on foliage.

Ohio. T. H. Parks (May 23): This beetle is spreading in western Ohio and was sent in this month with the statement that it is feeding on the foliage of elm trees and is laying eggs. Specimens came from Miami and Champaign Counties. Serious injury occurred to some elms in Columbus last summer.

Idaho. R. W. Haegele (May 21): This insect is very abundant and injurious in southwestern Idaho. First generation larvae are hatching.

California. M. L. Jones (May 11): The elm leaf beetle was reported as causing slight damage to elms in Kern and Madera Counties in April.

C. S. Morley, Kern Co. Agr. Conn. Mo. News Bull. (May 1): This insect is doing considerable damage, and we find first-brood beetles emerging 1 month earlier than usual.

EUROPEAN ELM SCALE (Gossyparia spuria Mod.)

Ohio. E. W. Mendenhall (May 16): Various species of elm in Upper Arlington, adjacent to Columbus and at Columbus, are very badly infested.

Colorado. G. M. List (May 26): There is a prospect for the heaviest infestation ever recorded in many sections of the State. Egg laying has not begun, but the scale is much further advanced at this time than usual.

FIR

AN APHID (Dreyfusia piceae Ratz.)

Maine. H. B. Peirson (May 20): Winter mortality of the balsam wooly aphid amounted to a 90 percent kill of aphids above the snowline and a 50 percent kill of those below.

HEMLOCK

A GELECHIID (Recurvaria thujaella Kearf.)

Massachusetts. J. V. Schaffner, Jr. (May 25): An outbreak of this insect was reported in May 1933 at Beverly. Several acres of hemlock were affected. On May 17, 1934, the infestation was still persisting. From a collection made on that date 31 percent of the larvae were found to be parasitized by Copidosoma sp.

JUNIPER AND CEDAR

JUNIPER WEDWORM (Dichomeris marginellus Fab.)

Maryland. G. S. Langford (May 25): On May 23 this insect was observed pupating at College Park. This date of pupation compares favorably with that of 1931, when larvae pupated from May 14 to June 2. Considerable injury was done to junipers during early spring, especially to Irish and Swedish junipers. Many junipers are heavily infested.

DEODAR WEEVIL (Pissodes deodarae Hopk.)

Mississippi. C. Lyle (May 23): Serious injury to Cedrus deodara was reported in Louisville in Winston County on May 4.

JUNIPER SCALE (Diaspis carueli Targ.)

Maryland. G. S. Langford (May 25): The Juniper scale is abundant and injurious on juniper, especially Irish, Swedish, and Pfitzer, in many places. Eggs were observed hatching at College Park on May 24. Approximately 11 percent of the scale showed parasitization.

LARCH

LARCH CASE BEARER (Coleophora laricella Hbn.)

- New England. J. V. Schaffner, Jr. (May 25): This case bearer seems to be present on all larch trees throughout New England. The infestations, in general, are not quite as severe as last year. However, the trees in many areas, especially in Maine, are almost completely brown from the severe feeding.
- Maine. H. B. Peirson (May 20): This insect suffered very little winter mortality. Larvae have moved onto the foliage, which is beginning to show brown from the effects of the feeding.
- Vermont. H. L. Bailey (May 26): This insect is very abundant at Sharon, but apparently the feeding was nearly over on May 23. General observation in Essex County on May 24 indicated only slight infestation.
- New York. H. E. Horsey (May): Caterpillars in overwintered cases were moving onto new leaves on May 2 and for about a week after that date. On May 23 considerable damage was to be found on American larch, for which they seem to show a preference. A number were observed on Dahurian larch (Larix gmelini japonica) and on Siberian larch (L. sibirica). The least infested are Japanese larch (L. kaempferi) and European larch (L. decidua). The planting under observation contains trees from 20 to 70 feet in height. The damage probably would be greater if the trees had not been sprayed in the early part of the month. Several reports from western New York indicate that this insect is becoming a serious pest on the larch.

OAK

CALIFORNIA OAK WORM (Phryganidia californica Pack.)

- California. H. J. Ryan (May 24): The California oak moth has appeared in large numbers this spring and has done considerable damage to live oaks along the foothills between Los Angeles and Santa Monica.

PINE

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana Schiff.)

- Connecticut. R. B. Friend (May 23): Infestation on red pine is much lighter throughout the State than at this time last year.

WHITE-PINE WEEVIL (Pissodes strobi Peck)

- Maine. H. B. Peirson (May 20): Adults were very abundant on white pine leaders on May 15. Feeding and mating were taking place at Augusta and vicinity.

PINE NEEDLE SCALE (Chionaspis pinifoliae Fitch)

- Massachusetts. A. I. Bourne (May 25): Eggs were hatching at Amherst May 19 or 20 and there was no appreciable winter mortality.

Maryland. E. N. Cory (May 25): The pine needle scale was observed on white pine at Baltimore.

Colorado. G. M. List (May 26): The pine leaf scale is very abundant in many localities. Eggs were hatching freely at Fort Collins on May 19 and at Denver on May 12.

SPRUCE

AN APHID (Lachnus abietis Fitch)

Nebraska. M. H. Swenk (May 15): Specimens of spruce twigs, heavily infested with a Lachnus, believed to be L. abietis, came from Washington County the second week in May.

WILLOW

EUROPEAN WILLOW BEETLE (Plagiodera versicolora Laich.)

Massachusetts. J. V. Schaffner, Jr. (May 19): C. E. Hood found these beetles abundant and very active on May 7. Many were mating and some eggs had been deposited, chiefly on the underside of willow leaves.

NEVADA BUCK MOTH (Hemileuca nevadensis Stretch)

Nebraska. M. H. Swenk (May 15): Newly hatched larvae of the Nevada buck moth were sent in from Sheridan County on May 10, reported as having been found on a bay-leaved, or laurel willow tree.

INSECTS AFFECTING GREENHOUSE

AND ORNAMENTAL PLANTS

A WEEVIL (Pseudocneorrhinus setosus Roelofs)

Connecticut. W. E. Britton (May 22): All old leaves on mountain laurel had been notched around the margins by the beetles; they were feeding on the small bracts around the terminal buds of rhododendron. Some of the leaves of Deutzia gracilis had been eaten; last season the bush was stripped.

A LYGAEID (Geocoris bullatus Say)

Nebraska. M. H. Swenk (April 15 to May 15): Specimens taken in abundance from a lawn in Lancaster County, where they were causing bare spots, were brought in on May 8.

AMARYLLIS

A NOCTUID (Xanthopastis timais Cram.)

Mississippi. C. Lyle (May 23): Larvae were abundant on amaryllis at Valley, Yazoo County, on April 27.

BOXWOOD

BOXWOOD LEAF MINER (Monarthropalpus buxi Labou)

Maryland. G. S. Langford (May 25). Present in large numbers on many plantings of boxwood on the Western Shore. Emergence began at College Park on May 9.

GLADIOLI

GLADIOLUS THRIPS (Taeniothrips gladioli M. & S.)

Florida. J. R. Watson (May 21): Specimens taken on gladiolus and iris have been sent in from many new localities, and thrips are quite generally distributed over Florida.

HOLLY

HOLLY LEAF MINER (Phytomyza ilicis Curt.)

Maryland. G. S. Langford (May 25): The holly leaf miner is rather abundant in individual plantings. Serious damage is being done to individual trees. The insect was in the pupal stage on May 22.

MAGNOLIA

MAGNOLIA SCALE (Neolecanium cornuparvum Thro.)

South Carolina. J. A. Berley (May 24): Abundant on magnolia at Charleston; being attached by predacious lepidopterous larvae.

ROSE

OBLIQUE-BANDED LEAF ROLLER (Cacoecia rosaceana Harr.)

New York. R. E. Horsey (May): Considerable evidence of the work of this insect on the meadow rose (Rosa blanda), but no serious damage. The caterpillars are hard to find. They have probably been eaten by birds.

SPINY ROSE GALL (Rhodites bicolor Harr.)

Nebraska. M. H. Swenk (May 15): Specimens of galls deforming roses were sent in from Thayer County the second week in May.

VIRGINIA CREEPER

• A LEAFHOPPER (Erythroneura comes ziczac Walsh)

Idaho. R. W. Haegle (May 21): The Virginia creeper leafhopper survived the winter in large numbers and first-generation nymphs are now hatching.

Utah. G. F. Knowlton (May 8): Grape leafhoppers are causing leaves of the Virginia creeper to become spotted at Logan and Brigham. (May 22): Grape leafhoppers are damaging Virginia creeper at Roy, Ogden, Salt Lake City, and Grantsville.

I N S E C T S A T T A C K I N G M A N A N D
D O M E S T I C A N I M A L S

WINTER TICK (Dermacentor albipictus Pack.)

North Dakota. J. A. Munro (May 19): The ticks reported in the Insect Pest Survey Bulletin vol. 14, no. 2, p. 62 (April 1934) have been determined by F. C. Bishopp and H. E. Ewing as D. albipictus. This species is more widespread in western North Dakota than was at first believed. It was found on cattle and horses May 13 in Billings County.

GOATS

SCREW WORM (Cochliomyia macellaria Fab.)

Texas. O. G. Babcock and E. C. Cushing (May 8): No doubt the heavy loss of goats due to cold weather this spring is the direct cause of the superabundance of flies. A ranchman living 35 miles north of San Angelo, Tom Green County, reports 2,000 cases.

H O U S E H O L D A N D S T O R E D - P R O D U C T I N S E C T S

TERMITES (Reticulitermes spp.)

Connecticut. N. Turner (May 22): Continued reports of damage by R. flavipes Koll. come in from Hamden, New Haven, Stamford, and Madison. There are many serious cases.

Illinois. W. P. Flint (May 22): Termite damage has been extremely heavy. The actual amount spent for repairing damaged buildings would run very high.

Tennessee. G. M. Bentley (May): General damage over the State by R. flavipes.

Nebraska. M. H. Swenk (April 15 to May 15): Termites (R. tibialis Dks.) were reported from Clay and Hall Counties.

A P T I N I D (Mezium americanum Lap.)

Rhode Island. A. E. Stene (May 28): A beetle not previously sent in to this office was reported from a recently constructed bank building in Providence. The insects are being captured on the inside of electric fixtures in the ceiling.

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THE MORE IMPORTANT RECORDS FOR JUNE 1934

The dry weather that prevailed during late May and well through June aggravated the grasshopper situation. In general the sections of heavy emergence coincided with those indicated by surveys conducted last fall in certain States. No surveys were made in Wisconsin and Michigan and there the situation is much worse than was anticipated. Over 76,000 tons of poisoned bait purchased under a special appropriation has been allotted to the States, most of it going to generally infested territory.

During June the intensity of chinch bug damage increased greatly, the bugs leaving the small grains and in certain sections damaging corn before barrier materials became available. The unusual weather conditions caused the bugs to mature to the adult stage earlier than usual. In the cooperative campaign for chinch bug control carried on under special appropriation more than 1,250,000 gallons of creosote was allotted to Illinois, over 2,000,000 gallons to Iowa, and almost 2,000,000 gallons to Missouri. Lesser amounts were allotted to other States in the infested area. In some States the allotments from the special appropriation were augmented by purchases made with funds supplied by FERA.

Outbreaks of the mormon cricket in Montana and Idaho were larger and did more damage than was anticipated.

The rose chafer is reported as more seriously abundant than it has been for many years in the New England and Middle Atlantic States, the infestations extending westward into Michigan and Indiana.

Flea beetles, attacking corn principally, have been very destructive this year in Indiana, Illinois, Michigan, and Wisconsin.

The plum curculio emerged so late that little damage is anticipated from the second brood, with the possible exception of injury to Elberta peaches in the Fort Valley district of Georgia.

Heavy damage by the beet leafhopper is reported from the Twin Falls district in Idaho and the Sevier Valley in Utah.

The fall canker worm is reported as unusually abundant in the eastern part of New England and in New York.

The spring canker worm is reported as abundant from New York westward through Ohio and Michigan to Nebraska.

The elm leaf beetle is now well distributed over the Boise and Payette Valleys of Idaho, and is seriously defoliating shade trees.

Losses of cattle from attack by the screw worm are being reported from Florida and Georgia, indicating the possibility of a repetition of last year's serious outbreak of this pest.

OUTSTANDING ENTOMOLOGICAL FEATURES IN CANADA TO JUNE 25, 1934

The grasshopper outbreak continues to be of outstanding importance throughout the grain-growing areas of the three Prairie Provinces. Hatching of the major species began at the end of April in Alberta and early in May in Manitoba and Saskatchewan, being from 2 weeks to 1 month earlier than in 1933. Late in May and early in June hatching was general and almost complete in many sections, and crops were damaged severely over wide areas. Unseasonably hot weather and retarded crop growth, due to lack of moisture, greatly increased the extent of the damage. In southeastern Saskatchewan important grasshopper migrations started, owing to lack of food in the infested fields. General rains and cooler weather during the first half of June caused further germination of seed, better crop growth, and lessened activity of the insects, and control campaign efforts were much more effective under these conditions. In Saskatchewan it is generally accepted that in much of the area of very severe infestation, where the soils are light or medium, there would have been little or no crop survival after the drought had it not been for the control campaign.

The pale western cutworm began hatching early in the infested areas of Saskatchewan and Alberta (by April 20 in southern Alberta), and by the middle of May the infestation was general and damage had started. The damage to crops by this species during May was excessive. The insects were checked, however, by rains and cool weather in June. In Manitoba relatively little cutworm damage has been noted. In Eastern Canada local cutworm damage, unusually severe in some sections, was reported in New Brunswick, southern Quebec, and Ontario.

Some losses from wireworms have occurred in certain localities in southern Alberta. In Saskatchewan wireworms have done considerable general damage to crops on summer-fallow, especially in medium soils. Seasonal conditions have been generally conducive to severe injury by these insects.

Moderate flights of May or June beetles were noted in southern Quebec, eastern Ontario, and locally in southern Ontario during May. The beetles caused some damage to the foliage of shade trees, raspberry, roses, and other plants. White grubs are distinctly reduced in numbers in eastern Ontario, as compared with last year, but they are sufficiently abundant to indicate an exceptionally large flight of beetles for 1935, 40 or more grubs per square yard of sod being common.

Extensive flights of beet webworm moths occurred in various localities in the Prairie Provinces during May. In Saskatchewan they were generally present throughout at least the central and southern parts of the province.

The hop flea beetle is somewhat more abundant than average in localities in southern Alberta, attacking radishes, rhubarb, and sugar beets, and is numerous in the Lower Fraser valley, British Columbia, causing local damage to hops. Crop damage by the potato flea beetle is severe in sections of Ontario, and the cabbage flea beetle is troublesome on Vancouver Island.

The cabbage maggot is a serious pest on untreated plants in southwestern Ontario. Eggs were noted in southern Quebec as more numerous than in 1933. Seed corn maggots have damaged truck crops on Vancouver Island.

Orchards in the Annapolis Valley, Nova Scotia, appear to be unusually free from insect pests. In the Okanagan Valley, British Columbia, certain fruit pests are more prevalent than usual. Overwintering conditions in the Okanagan were very favorable for hibernating insects.

The winter mortality of the codling moth in several localities in southern Ontario varied approximately from 9 to 52 percent. Adult moths began to emerge at the usual period in relation to the blooming of the trees. Trouble from this species is expected in apple-growing districts of British Columbia.

Aphids are remarkably scarce in Nova Scotian orchards, as a result of unusual autumn weather followed by a severe winter.

In southern counties of Ontario, where San Jose scale occurs, the winter mortality was found to range approximately from 55 to 89 percent. The minimum winter temperatures recorded in the localities studied ranged from 14 to 25 degrees below zero.

Bait-pail records show that adults of the oriental fruit moth survived the cold winter throughout the Niagara district, Ontario. The cold, backward spring, however, retarded the development of the species.

An outbreak of grape leaf hoppers is again present in the Niagara district.

The eye-spotted budmoth and Bruce's measuring worm are more abundant than for several years in the Okanagan Valley, British Columbia.

Near Fredericton, New Brunswick, infestations of the balsam woolly aphid have been satisfactorily checked by the winterkilling of larvae above the snow line. Survival was good, however, under the snow.

A careful study of the European pine shoot moth in southern Ontario revealed a mortality of 95 percent or more during the past unusually severe winter.

Definite increase of tent caterpillars is reported in parts of New Brunswick, Nova Scotia, southern Quebec, and Ontario, the tents of these insects being conspicuous in many localities. Tent caterpillars also show an increase in sections of British Columbia where they have been rather scarce for several years. Local damage by tent caterpillars is reported from the Prairie Provinces.

Scouting for the brown-tail moth in the Maritime Provinces revealed only four webs near St. Stephen, New Brunswick, and in these the larvae were dead. No traces of the insect were found in Nova Scotia.

In Ontario and Quebec, and probably elsewhere in eastern Canada, mosquitoes are more troublesome than for several years, owing to the heavy winter snowfall. Blackflies also are exceptionally numerous in various localities.

The rhododendron white fly (Dialeurodes chittendeni Laing.) was found for the first time in Canada this spring, infesting nurseries in the vicinity of Vancouver and Victoria, British Columbia. Efforts are being made to eradicate this pest.

GENERAL FEEDERS

GRASSHOPPERS (Acrididae)

- Michigan. R. Hutson (June 12): Grasshoppers are hatching in large numbers in 29 counties of the infested area, which comprises the upper peninsula and the upper third of the lower peninsula. Some of them have reached the second instar and poisoning is in progress.
- Wisconsin. E. L. Chambers (June 25): Probably the most serious epidemic of grasshoppers ever experienced in Wisconsin appeared this season, certainly the worst in the memory of the oldest residents. Thirty-five counties in the northern half of the State received both State and Federal aid in addition to large sums spent by the counties themselves so long as their credit lasted. Arsenic sufficient to make up 9,500 tons of the poison, including 2,000 tons of ready-mixed bran furnished by the Government, was distributed.
- Minnesota. A. G. Ruggles (June 26): Grasshoppers are very abundant in 40 counties. Farmers are frantically calling for poison bait. The infestation is much worse than was expected.
- North Dakota. J. A. Munro (June 14): Hatching of the various economic species has continued up to the present. According to F. D. Butcher, Camnula pellucida Scud. is very abundant in the northern part of the State, while Melanoplus mexicanus Sauss. and M. bivittatus Say are generally distributed. The recent rainfall over the hopper-infested area has been followed by heavy hatching.
- Iowa. C. J. Drake (June 25): The grasshopper infestation in western Iowa extends along the Missouri River from Sioux, Plymouth, and Crawford Counties to Taylor, Fremont, and Page Counties, a total of 16 counties. Over 250 tons of poisoned bait have been used in these counties.
- Nebraska. M. H. Swenk (June 20): The grasshopper situation developed with unexpected severity during the second half of May and the early part of June. The heaviest early infestations were in the northeastern corner of the State. As the month advanced serious outbreaks developed across the central part of the State to the southwestern corner and northward into the panhandle. A total of 1,880 tons of bait furnished by the Federal Government has been distributed.
- Kansas. H. R. Bryson (June 26): Grasshoppers are very abundant in some sections of the State, but about as abundant as usual at Manhattan. Reports of infestations have been received from Peru.
- Texas. E. W. Laake (June 23): Grasshoppers are very abundant in Dallas County.

Montana. A. L. Strand (May 29): The grasshopper campaign is well under way. Hatching of the eggs began at least a month earlier than in 1933. The infestation is developing very much in accordance with the survey. M. bivittatus has hatched almost completely and some are nearly full grown. The lesser migratory grasshopper (M. mexicanus) has been slower in hatching but probably 80 percent of the eggs are now hatched.

Idaho. C. Wakeland (June 19): Grasshopper control has been progressing very satisfactorily and to date the State has shipped in 670 tons of Federal poisoned bait. Nearly all damage has been prevented, but hoppers have reached the migrating stage in some areas and considerable difficulty is being experienced in protecting cultivated lands along the margins of desert areas.

Arizona. C. D. Lebert (June 25): Winged adults of our early hatched grasshoppers are practically exterminated in all fields where the poison was used. Late hatching of M. mexicanus has been noticed in two fields to date. It is too early to determine to what extent this late hatch may develop.

Oregon. D. C. Mote (May 28): A Federal grasshopper control campaign is being undertaken in Klamath, Lake, Harney, Creek, Deschutes, and Grant Counties. C. pellucida is the most abundant species involved.

California. E. O. Essig (June 24): Grasshoppers are abundant in a few scattered localities.

MORMON CRICKET (Anabrus simplex Hald.)

Montana. A. L. Strand (May 29): The outbreak in southern Montana is far more serious than was expected, but in general conforms to the egg survey made last summer. Crickets are also appearing in several northern counties. In some of these there are probably not enough crickets to do much damage this year.

Idaho. C. Wakeland (June 19): Mormon crickets are a month earlier than usual, most of the eggs having already been deposited. A few instances of severe injury were encountered this year in the upper Snake River Valley; the first real damage we have observed in the 3-year fight we have had with them.

VARIEGATED CUTWORM (Lycophotia margaritosa saucia Hbn.)

Oregon. D. C. Mote (May 28): Cutworms were found injuring hops on May 21 near Independence and Dayton. In certain areas every hill contained from 1 to 20 worms and had two thirds of the shoots cut off.

ARMYWORM (Cirphis unipuncta Haw.)

Indiana. J. J. Davis (June 22): Moths have been abundant and there is every likelihood of outbreaks in the near future.

Illinois. W. P. Flint (June 23): There have been several slight-to-moderate outbreaks.

Wisconsin. E. L. Chambers (June 25): Armyworms are originating usually in swamp lands in marsh hay and are moving out and destroying thousands of acres of valuable crops before being brought under control in one of the worst epidemics this State has ever experienced. State aid in supplying poison and assistance in directing the control measures has already been given to more than dozen counties.

C. L. Fluke (June 21): Armyworms are very numerous on 1,000 acres of marsh grass in Manitowoc County; and on corn in Washburn and Dodge Counties.

Minnesota. A. G. Ruggles (June 26): Cirphis unipuncta Haw. is very bad in Houston, Freeborn, Waseca, Otter Tail, and Mille Lacs Counties.

Iowa. C. J. Drake (June 25): Armyworms have done considerable damage locally to rye and wheat in Hamilton, Webster, Story, and two or three other counties. Most of the worms are apparently free from parasites.

H. E. Jaques (June): The armyworm has been reported from Osceola, Pocahontas, Tama, and Poweshiek Counties.

WHITE GRUBS (Phyllophaga spp.)

New Hampshire. L. C. Glover (June 25): There is severe damage to white pine seedlings in Merrimack County.

Maryland. J. A. Hyslop (May 23): A heavy flight of June beetles (P. knochi Gyll.) was observed on May 23 at Avel. (Det. by E. A. Chapin)

Michigan. E. I. McDaniel (June 14): June bugs are abundant throughout central and southern Michigan and the foliage has been practically removed from walnut, oak, and hickory. P. hirticula Knoch is the predominating species.

Minnesota. A. G. Ruggles (June 26): White grubs are very abundant in a number of counties.

Iowa. C. J. Drake (June 25): Some injury is showing up in a large number of counties in western Iowa. A considerable percentage of the overwintering grubs are still in their hibernating cells many inches beneath the surface of the soil.

Nebraska. M. H. Swenk (June 20): White grubs are reported as extensively destroying the roots of Black Hill spruce trees in York County on June 8.

A WIREWORM (Heteroderes laurentii Guer.)

Alabama. K. L. Cockerham (May 16): Baldwin County has started moving its 9,000-acre potato crop. Wireworm injury is more serious than for the past several years. It is estimated that 50 percent of the cars are graded under No. 1 because of damage. On some farms from 20 to 30 percent of the potatoes are injured.

PLAINS FALSE WIREWORM (Eléodes opaca Say)

Nebraska. M. H. Swenk (June 20): Adults were reported as very abundant in Chase and Box Butte Counties on June 8 and 12, respectively. The Box Butte County correspondent stated that they were so abundant at night on the road about 4 miles west of Alliance that a truckload of them could have been shoveled up in a mile.

ASIATIC GARDEN BEETLE (Autoserica castanea Arrow)

New York. H. C. Hallock (June 23): Larvae have been found in gardens that were cultivated last year. They are destroying beets, carrots, corn, squash, lettuce, and asters. It was necessary to replant at Larchmont, Oyster Bay, Locust Valley, Port Washington, and Great Neck.

JAPANESE BEETLE (Popillia japonica Newm.)

New Jersey. C. H. Hadley (June 12): The Japanese beetle season has started. General field emergence of the adults from the ground started at Moores-town on June 11. On that day a number of beetles were found in the field.

ROSE CHAFER (Macrodactylus subspinosus Fab.)

Maine. H. B. Peirson (June 20): The rose chafer is abundant at Augusta and is feeding on elms at Saco.

Connecticut. M. P. Zappe (June 14): Adults are unusually numerous and destructive to plum, grape, and apple foliage and fruit in the eastern part of the State and to corn at New London.

New York. N. Y. State Coll. Agr. News Letter (June): The rose chafer appeared the first week in the month in the Hudson River Valley and did considerable damage during the second week of the month in this region and in Niagara County.

New York. P. J. Parrot (June 25): M. subspinosus is very abundant in some places in the western part of the State.

New Jersey. I. M. Hawley (June 11): The rose chafer is numerous, beetles are entirely destroying roses in ornamental gardens.

Maryland. E. N. Cory (June 21): There is a heavy infestation at Cambridge.

Indiana. J. J. Davis (June 22): The rose chafer was reported on June 2 as damaging peaches at Goshen.

Michigan. E. I. McDaniel (June 14): The first rose chafers in the vicinity of Lansing appeared about June 12. They were feeding on apples in a large orchard. In other years they have been very destructive to peonies and roses.

Ray Hutson (June 22): The rose chafer is causing some damage to corn at Okemos, and is attacking fruit trees at Williamsburg.

Wisconsin. E. L. Chambers (June 25): Rose chafers are appearing in destructive numbers in Monroe, Jackson, and Waushara Counties, where they are injuring flowers, garden crops, and field corn over large areas of light sandy soil.

COMMON RED SPIDER (Tetranychus telarius L.)

- South Carolina. J. A. Berley and W. C. Nettles (June 23): Damaging flowers and ornamentals, often starting from sweet peas.
- Indiana. J. J. Davis (June 22): Reported damaging evergreens at Plymouth June 13, and beans and sweetpotatoes at Richmond June 19. Destructive in dahlia gardens at Dublin for the past two seasons.
- Mississippi. J. M. Langston (June 22): Reports of infestations on arborvitae and other ornamentals received from various sections during the past month.
- Nebraska. M. H. Swenk (June 20): Red spiders reported working heavily on jack pines in Phelps County May 20 and on cedar trees in Chayenne County May 29.
- Idaho. C. Wakeland (June 19): Following the unprecedented outbreak of red spiders last year and the mild winter succeeding, we have been expecting a very serious infestation this season. Normal date past when red spiders begin to severely injure trees. Many sections free of red spiders and only very mild infestation on the lower leaves of Delicious apple trees.
- Utah. G. F. Knowlton (June 12): Damaging raspberries at Butlerville, Salt Lake County.
- California. Kern County, Mo. News Bull. (June 1): Proving a serious and persistent pest. Many sycamore trees have turned completely brown from the attacks. Trees sprayed before injury are still in good condition. The earliest injury to sycamore and other deciduous trees in the history of this office. Preparations are being made to spray some trees the second time to prevent injury.

CEREAL AND FORAGE - CROP INSECTS

WHEAT AND OTHER SMALL GRAINSWHEAT HEAD ARMYWORM (Neleucania albilinea Hbn.)

- Maryland. E. N. Cory (June 21): This armyworm is doing considerable damage to wheat along the edges of fields near Adamstown, Frederick County.

WHEAT STEM MAGGOT (Meromyza americana Fitch)

- Kansas. H. R. Bryson (June 26): The wheat stem maggot reported to be injuring wheat at Topeka.

ENGLISH GRAIN APHID (Macrosiphum granarium Kby.)

- Indiana. J. J. Davis (June 22): The grain aphid was reported as very abundant on wheat in a number of localities in southeastern Indiana during the first 2 weeks in June; however, ladybird beetles have cleaned up the infestations.

APHID (Pemphigus brevicornis Hart)

- Nebraska. M. H. Swenk (June 20): Specimens of this aphid were sent in on June 8 from Butler County, where they were causing severe damage to the roots of wheat plants. A similar report came from Saline County on June 19, where this or another species was infesting the roots of barley plants.

RICE STINKBUG (Solubea pugnax Fab.)

- Oklahoma. C. F. Stiles (June): The rice stinkbug has been reported from McClain County as damaging oats by sucking the milk out of the developing grain.

CORNCHINCH BUG (Blissus leucopterus Say)

- New Hampshire. L. C. Glover (June 25): The chinch bug has been reported as doing serious injury to golf greens in West Hopkinton.
- New York. E. P. Felt (June 22): Chinch bugs are present in considerable numbers in a lawn at Scarborough. This insect has caused serious damage on golf greens and lawns in this general area during the last few years.
- Indiana. J. J. Davis (June 22): In seven northwestern counties, the chinch bug killed wheat and rye and began migrating into corn much earlier than usual. The losses will be very severe. In the southwestern part of the State from Vincennes north and in the eastern and northeastern sections the bugs are very abundant, but conditions are much more favorable for control by use of barriers. In these sections, although seriously affected by drought, the bugs are remaining in the wheat and rye until about harvest time. The government aid in furnishing creosote is much appreciated by the farmers. The chinch bug is about a week or 10 days ahead of normal. On May 16 we found the first hatching eggs. On June 20, we found the first winged adults of the first generation at Lafayette. Forty-two counties are known to be infested to the extent that control measures are necessary and I feel certain that the final check-up will find all counties north of a diagonal line from Knox County on the west to Randolph County on the east, to be infested to a noticeable degree.
- Illinois. W. P. Flint (June 23): Chinch bugs have been extremely destructive during the past month in nearly all parts of the State, owing to the drought. They left the small grain before it was cut. It is estimated that more than 200,000 miles of barrier have been constructed within the State.
- Michigan. R. Hutson (June 22): Chinch bugs are very abundant in Berrien County, at Galien and at New Buffalo.
- Minnesota. A. G. Ruggles (June 26): Chinch bugs are very abundant in a few counties.
- Wisconsin. E. L. Chambers (June 25): Chinch bugs are beginning to appear in a few of our southern and western counties, but are not yet doing serious damage.
- Iowa. C. J. Drake (June 25): The infestation is probably the worst in the history of Iowa. The bugs are doing damage in 60 counties. In 40 southern counties the bugs have destroyed from 75 to 90 percent of the small grain--barley, oats, and wheat. In a few counties the county agents estimate that less than 2 percent of the small grain will be harvested or cut for forage. In many counties the farmers will do very well to save one half of the corn crop. The northmost records of migration from small grain to corn being from Story, Benton, Jones, and Jackson Counties. Light infestations have been reported in a few counties in the northern part of the State. Over 2,000,000 gallons of creosote coal tar have been used this summer. The County Agent of Monroe County

stated that the farmers were very much concerned about pasturing cattle in small grain fields heavily infested. In one instance a farmer reported the death of a cow from feeding upon small grain plants covered with the bugs. A post-mortem examination of the cow showed thousands of chinch bugs in the intestinal tract. The veterinarian diagnosed the cause of the death as the result of toxins from the bugs.

Missouri. L. Haseman (June 25): We are rapidly drawing to a close the greatest active campaign of control against this pest that Missouri has ever been called on to wage. The Federal cooperation came just in time to largely save the day. About 1,250,000 gallons of barrier oil have been furnished by the Federal department, saving a good many millions of bushels of corn. Bugs will continue to migrate until the first of July in some counties, but the available supply of oil will about take care of our needs. About 70 counties have been heavily infested and 20 or 30 of these most seriously.

Nebraska. M. H. Swenk (June 20): Late in May and early in June a very severe infestation of the chinch bug developed in southeastern Nebraska, extending north into Butler, Saunders, and Sarpy Counties. Less severe infestations involving serious crop destruction occurred in the four counties immediately west of this area. A separate infestation of less severity developed in south central Nebraska. The migration started fully 10 days earlier than the earliest beginning of a chinch bug migration previously recorded (June 12, 1933), and nearly 3 weeks ahead of the average beginning of migration (June 21).

Kansas. H. R. Bryson (June 26): Chinch bugs began migrating at Manhattan on June 1 and reached the peak of migration on June 14. They are very abundant in the eastern two fifths of the State. Extensive use was made of dust and creosote barriers. The adults were flying to other fields on June 19 and 20.

CORN ROOT APHID (Anuraphis maidi-radici Forbes)

Iowa. C. J. Drake (June 25): The corn root aphid has been reported from a large number of counties in Iowa this spring. In several instances the fields are so heavily infested and badly injured that the farmers have given up trying to grow corn and are replanting the fields to soybeans. In Story County the aphid was found in large numbers feeding on the roots of melon plants, an unusual record for this insect.

CORN EAR WORM (Heliothis obsoleta Fab.)

North Carolina. R. W. Leiby (June 14): The corn ear worm is either more destructive than usual on commercially grown corn in the eastern part of the State or there is more than the usual interest in preventing damage.

South Carolina. W. C. Nettles (June 23): The corn ear worm is damaging young tomatoes at Clemson College. In the eastern section it has damaged seed heads of flax in experimental plantings.

Iowa. C. J. Drake (June 25): Many farmers, especially growers of sweet corn,

are asking about the corn ear worm. Apparently the insect is widely distributed in the State and may do a considerable amount of damage.

Kansas. H. R. Bryson (June 26): The corn ear worm is very abundant. A considerable amount of damage has been done to the curl of the corn plants. The insect also has been reported injuring tomato fruit at Canton and Wichita.

SUGARCANE BEETLE (Euetheola rugiceps Lec.)

Georgia. O. I. Snapp (June 13): This insect has destroyed the corn on about 20 acres of very fertile bottom land at Haddock.

Illinois. W. P. Flint (June 23): There has been a very widespread and extremely destructive outbreak of the rough-necked cornstalk beetle in the southern third of the State.

C. L. Metcalf (June 20): The sugarcane beetle has been reported as very destructive to corn in Hamilton County. The injured field of corn and soybeans adjoins 160 acres of bottom land, most of which is in cultivation this year for the first time in 4 years.

Mississippi. J. M. Langston (June 22): On June 9 a grower at Dorsey, Itawamba County, sent adults to this office, with a report that they had severely injured young corn. Complaints of injury were also received from Rockport, Copiah County, during the latter part of May.

FLEA BEETLES (Halticinae)

Indiana. J. J. Davis (June 22): Flea beetles are the second most important pest of field crops in Indiana. The pale-striped flea beetle (Systema taeniata blanda Melsh.) is the predominating species attacking corn and by far more abundant than I have ever known it to be. Specific records include: At Connersville, in one field, 216 tomato plants destroyed in one night; at Goshen, 30 to 40 percent of corn taken in some fields, also attacking soybeans, Canada thistle, morning glory, and milkweed; at Fort Wayne, destroying corn and truck crops; at Hamilton, a 16-acre field of corn was destroyed and other cornfields were seriously damaged; a serious pest in corn fields at South Bend, Rochester, Albion, and Topeko. All of these infestations are in the northern half of the State. Striped flea beetles (species unknown) were reported damaging corn, beans, beets, and potatoes at Aurora, Avilla, and Danville on June 1 to 6, and the black potato flea beetle was reported from Aurora, Avilla, and North Judson on June 1, 6, and 15, respectively.

Michigan. R. Hutson (June 12): We are having trouble with the pale-striped flea beetle on field corn in the southern tier of counties. (June 13): The pale-striped flea beetle was reported today from several points in the northern half of the lower peninsula.

Wisconsin. E. L. Chambers (June 18): The pale-striped flea beetle has been unusually abundant this month throughout the south central portion of the State, destroying large acreages of corn and potatoes.

CORN BILLBUGS (Calendra spp.)

- Indiana. J. J. Davis (June 22): Billbugs (species undetermined) were very destructive to several fields of corn, according to information received on June 18.
- Minnesota. A. G. Ruggles (June 26): C. aequalis Gyll. reported from Redwing and St. Paul on corn; C. pertinax Oliv. Marshall reported on corn.
- Iowa. C. J. Drake (June 25): Many fields of corn here and there have been badly injured, or entirely destroyed by billbugs (several species) this spring.
- North Dakota. J. A. Munro (June 14): The clay-colored billbug (C. aequalis) is reported as very abundant in a farm yard at Eldridge, Stutsman County.
- Nebraska. M. H. Swenk (June 20): Timothy billbugs (C. parvulus Gyll.) were reported to be destroying corn on May 26 in Richardson County. The clay-colored billbug was reported as destroying corn in Madison County on June 7. On June 20 a Lancaster County farmer brought in some corn destroyed by the latter species.
- Alabama. J. M. Robinson (June 23): Corn billbugs are moderately abundant at Spring Hill.

ALFALFAALFALFA WEEVIL (Hypera postica Gyll.)

- Idaho. C. Wakeland (June 19): No injury is reported in southern or southwestern Idaho but the weevil is seriously injuring alfalfa in the upper Snake River Valley where spraying is being done for control.
- California. A. E. Michelbacher (June 23): Over its entire range in central California the alfalfa weevil has shown an increase in numbers during the past month. One June 15 as high as 122 larvae to 100 sweeps were collected in the Tracy area. About Pleasanton on June 18, counts as high as 225 larvae were taken, while in the Niles district collections of over 1,000 larvae were made. Most of the larvae collected were small, many being very small. Many of these larvae are evidently the beginning of a second brood.

SUGARCANESUGARCANE BEETLE (Euetheola rugiceps Lec.)

- Louisiana. J. W. Ingram, W. A. Douglas, and E. K. Bynum (June): Beetle injury in the sugarcane section was practically over the last of June. The heaviest injury occurred during May. Loss from injury to sugarcane was 40 to 50 percent less than in the 3 years. This decrease was due partly to the growing of varieties giving a larger number of plants per acre and having greater recovery ability on land that is subject to heavy beetle injury, and in part to increased rainfall at the time of injury, which stimulated growth and increased recovery.

FRUIT INSECTS

APPLECODLING MOTH (Carpocapsa pomonella L.)

- Delaware. L. A. Stearns (June 23): Emergence of spring-brood moths ended by June 14; peak of first-brood larval entry, June 7 to 14.
- South Carolina. F. Sherman (June 23): The codling moth is apparently less abundant than normal at Clemson College.
- Georgia. C. H. Alden (June 23): Codling moth moderately abundant at Cornelia, first brood moths appearing in numbers on June 17.
- Indiana. J. J. Davis (June 22): Codling moth is as abundant or more so than in 1926 or 1930, and the second-brood worms will be appreciably earlier than usual. In many regions more than the usual number of sprays will need to be applied.
- Michigan. Ray Hutson (June 12): Adults became active in Berrien County on May 18, more than a week earlier than any marked flight was noticed a year ago. Exceedingly hot weather has brought the peak of emergence at least 2 weeks before the usual date.
- Wisconsin. C. L. Fluke (June 23): The codling moth is more abundant than last year. The peak of emergence was reached on May 31.
- Missouri. L. Haseman (June 25): The situation is again serious. Most of the first-brood larvae were out of the fruit by June 20, indicating that the July brood of moths will be heavy and bunched.
- Minnesota. A. G. Ruggles (June 26): The codling moth appears to be relatively scarce. It will have only a few apples to feed on, as the drought has caused a tremendous drop.
- Kansas. H. R. Bryson (June 26): The codling moth is about as injurious as usual in Doniphan County. Hail in the vicinity of Atchison damaged apples so that increased injury by the second brood of codling moth can be expected.
- Oregon. B. G. Thompson (May 28): Codling moth depositing considerable number of eggs the last few days. First moth found on May 21.
- California. E. O. Essig (June 24): The codling moth is moderately abundant.

EASTERN TENT CATERPILLAR (Malacosoma americana Fab.)

- Maine. H. B. Peirson (June 10): The insect is general in the State, with very heavy outbreaks.
- New Hampshire. L. C. Glover (June 25): Slightly less abundant this year over the State as a whole, but more abundant in some localities. Flying moths were observed to be very numerous on June 22.

Massachusetts. A. I. Bourne (June 25): Within the past week we have been catching large numbers of adults in light traps in commercial orchards.

Connecticut. E. P. Felt (June 22): Unusual numbers of moths are flying in the Stamford area, indicating that there will probably be an abundance of these insects next season.

New Jersey. R. C. Burdette, B. F. Driggers, and C. D. Hamilton (June 27): First adults were noted on June 15.

Minnesota. A. G. Ruggles (June 26): Very abundant around Lake Mille Lac, Saint Cloud, Wadena, Park Rapids, Walker, and Brainerd.

Wisconsin. W. E. Britton (June 23): The eastern tent caterpillar is very abundant.

FRUIT TREE LEAF ROLLER (Cacoecia argyrospila Walk.)

Connecticut. P. Garman (June): Unusually abundant in several orchards at Wallingford, where it appears to be increasing. Larvae observed in many orchards surrounding those heavily infested.

Indiana. J. J. Davis (June 22): The fruit tree leaf roller was reported as very destructive at Saint Joe on May 24, the first report of abundance of this insect received during the past 10 years.

California. E. O. Essig (June 24): The fruit tree leaf roller is moderately abundant.

PEAR BORER (Synanthedon pyri Harr.)

Virginia. W. S. Hough (June 4): The pear borer is very common on apple trees in commercial orchards at Winchester. The borer seems to be especially active on trees that were weakened by the 1930 drought. The moths are emerging in large numbers at this writing.

RASPBERRY CANE BORER (Oberea bimaculata Oliv.)

Indiana. J. J. Davis (June 22): The raspberry cane borer was reported as destructive in commercial dahlia gardens at Dublin.

A FLEA BEETLE (Haltica foliacea Lec.)

Kansas. H. R. Bryson (June 26): A green flea beetle, H. foliacea, was reported injuring seedling apples at Saint George, Wathena, and Topeka, as well as at several places along the Kansas River Valley. Also reported attacking poppies at Manhattan.

APPLE LEAF-GURLING MIDGE (Dasyneura mali Kieff.)

Massachusetts. A. I. Bourne (June 25): Professor Whitcomb reports that the apple leaf-curling midge is very abundant along the north shore.

APHIDS (Aphididae)

Connecticut. P. Garman (June 23): Green aphids (Aphis pomi DeG.) present throughout the season in New Haven, Hartford, and Middlesex Counties, but kept in check by enemies. The rosy aphid (Anuraphis roseus Bak.) is scarce.

New York. N. Y. State Coll. Agr. News Letter (June): The apple aphid during the last week in the month became noticeably abundant in the Hudson River Valley and in the western fruit-growing section. During this period the rosy aphid began to appear in numbers in western New York. No reports of serious aphid abundance were received. (Abs. J.A.H.)

P. J. Chapman (June 20): A. roseus and Aphis pomi are moderately abundant in the Hudson Valley.

P. J. Parrot (June 25): A. pomi is scarce to moderately abundant in the western part of the State; Anuraphis roseus equally abundant.

New Jersey. R. C. Burdette, B. F. Driggers, and C. C. Hamilton (June 27): Green fruit aphids are very abundant.

Maryland. E. N. Cory (June 21): Rosy aphids are moderately abundant in Anne Arundel County.

South Carolina. F. Sherman (June 23): The rosy apple aphid is perhaps more abundant than usual at Clemson College.

Georgia. C. H. Alden (June 22): Green and rosy aphids are moderately abundant at Cornelia.

Missouri. L. Haseman (June 25): Some rosy aphids appeared, but they were controlled promptly by ladybird beetles.

Tennessee. G. M. Bently (June): The woolly aphid (Eriosoma lanigerum Hausm.) is moderately abundant on apple twigs in the western part of the State.

Mississippi. J. M. Langston (June 22): Apple twigs severely infested with A. pomi were received from Greenwood, Leflore County, on May 24.

California. E. O. Essig (June 24): Fruit aphids are moderately abundant.

LEAFHOPPERS (Cicadellidae)

Maryland. E. N. Cory (June 21): Apple leafhoppers Typhlocyba pomaria McAtee are generally abundant.

Michigan. R. Hutson (June 12): Apple leafhoppers are very prevalent in Van Buren County.

New Jersey. R. C. Burdette, B. F. Driggers, and C. C. Hamilton (June 27): Apple leafhoppers are moderately abundant.

Kansas. H. R. Bryson (June 26): Empoasca sp. reported to be causing considerable injury to apple leaves in orchards in Doniphan County. There is a possibility of serious injury resulting within the next 2 months if steps are not taken to control them.

SAN JOSE SCALE (Aspidiotus perniciosus Comst.)

Massachusetts. A. I. Bourne (June 25): As yet very little evidence of San Jose scale is apparent, indications being that there is a considerable winter mortality.

Maryland. E. N. Cory (June 21): The San Jose scale is very abundant in Anne Arundel County.

Georgia. O. I. Snapp (June 15): Predators and parasites are abundant in peach orchards that have been heavily infested with the San Jose scale in Fort Valley, and during the last 2 months they have materially reduced that orchard pest.

PEACH

ORIENTAL FRUIT MOTH (Grapholitha molesta Busck)

Massachusetts. A. I. Bourne (June 25): The infestation is very general over the entire peach-growing sections of the State but it is quite variable in each section. In some commercial orchards where for the previous years the insect has been very abundant, it is now difficult to find. We note the greatest reduction in abundance in those sections where parasites have been liberated in greatest numbers.

Connecticut. P. Garman (June 23): First brood abundant in some orchards in New Haven and Hartford Counties. Larval parasites of the first brood scarce; egg parasites present in some places. Winter conditions may be responsible for low parasitism.

New Jersey. H. W. Allen (June 8): The catch of moths in bait pans from the overwintering brood has been slightly higher this spring than last and much higher than in 1931 and 1932, averaging at the peak more than 10 moths per day, per pan. Twig infestation has also been moderately heavy.

Pennsylvania. H. W. Allen (June 2): On May 25 and 26 a moderate infestation of peach twigs was found in orchards in Franklin County, but a much heavier infestation was found on the other side of the mountain in Adams County.

Delaware. L. A. Stearns (June 23): Twig injury by oriental fruit moth just appearing June 20.

Maryland. E. N. Cory (June 21): The oriental fruit moth is very abundant.

H. W. Allen (June 8): On May 21 very little infestation of the twigs of peach by first-brood larvae could be found in Dorchester, Wicomico,

or Worcester Counties. On May 24 a heavy infestation of peach twigs was noted in many orchards about Smithsburg, Washington County.

Virginia. H. W. Allen (June 8): On May 16 and 17 first-brood infestation of peach twigs was moderately heavy in many of the orchards in Albemarle County and heavy in Augusta County.

Georgia. O. I. Snapp (June 19): Some damage to terminals of twigs of non-bearing peach trees in and near Fort Valley, but of no importance in bearing orchards of this district.

C. H. Alden (June 23): A light twig infestation by the oriental fruit moth was noticeable on June 19 at Cornelia.

Mississippi. J. M. Langston (June 22): Peach twigs injured by larvae have recently been received from Greenwood, Leflore County.

PEACH BORER (Aegeria exitiosa Say)

New Jersey. R. C. Burdette, B. F. Driggers, and C. C. Hamilton (June 27): The peach borer is moderately abundant.

Georgia. O. I. Snapp (May 31): The first cocoon (pupa) of the season was collected from a peach tree in Fort Valley today. An empty cocoon with cast pupal skin, indicating that adults had already emerged, was also found today in the same tree. These are the earliest records for this latitude. The tree was infested with insectary-hatched larvae on July 20, 1933. (June 18): The first moth (female) of the season emerged today in Fort Valley. This is the earliest moth emergence date on record for this latitude under peach orchard conditions.

PLUM CURCULIO (Conotrachelus nenuphar Hbst.)

Massachusetts. A. I. Bourne (June 25): The plum curculio is present in normal numbers.

Delaware. L. A. Stearns (June 23): First-brood grubs are in the soil. The infestation of the short peach crop is moderate-to-severe.

New Jersey. R. C. Burdette, B. F. Driggers, and C. C. Hamilton (June 27): The plum curculio is moderately abundant.

Maryland. E. N. Cory (June 21): The plum curculio is very abundant. Typical killing of twigs on peach is noted.

Georgia. O. I. Snapp (May 28): The first pupation of the season took place today at Fort Valley. The cold rainy weather in May retarded the development of the curculio in the soil, and as a result it is doubtful whether there will be a second brood. Usually only one generation occurs in this latitude when pupation is as late as the last of May. Cool weather continues and will undoubtedly prolong the pupation period. (June 6): The first transformation to adult beetles in soil cells was recorded today. (June 13): The first new beetles of the season emerged from the soil today. This is 17 days later than the first emergence last year.

On account of the late emergence of first-generation an attack by the second brood is not anticipated, except perhaps in the Elberta, which is the last variety to move. (June 19): There has been no egg deposition by the second generation to date. (June 22): First-generation adults are now emerging in large numbers. Jarrings during the past week show an increase of over 300 percent in the number of adults.

Minnesota. A. G. Ruggles (June 26): The plum curculio is very abundant.

North Dakota. J. C. Russell (June 13): The plum curculio is very abundant.

Missouri. L. Haseman (June 25): During June oviposition was continued and was serious on plums but light on apple.

PEAR

PEAR PSYLLA (Psyllia pyricola Foerst.)

Connecticut. P. Garman (June 23): Very abundant in some orchards in New Haven County.

New York. N. Y. State Coll. Agr. News Letter (June): Adults are very numerous throughout the State. Egg laying is heavy and in many places the situation is serious. (Abs. J.A.H.)

P. J. Parrot (June 25): The pear psylla is from moderately to very abundant in the western part of the State.

A MIDGE (Dasyneura pyri Kieff.)

Connecticut. P. Garman (June 23): A midge, probably this species, is rolling the edges of pear leaves and is increasing in abundance. Observed in several orchards in New Haven.

A CURCULIONID (Phyllobius oblongus L.)

New York. C. R. Crosby (June 7): Beetles abundant; feeding on pear foliage in Penfield. (This European beetle was first discovered in this country in 1923. See Insect Pest Survey Bulletin Vol. 3, pp. 200-201, 1923).

CHERRY

CHERRY FRUIT FLIES (Rhagoletes spp.)

Oregon. S. C. Jones (May 28): First adults of R. cingulata Loew were found in emergence cages on May 14 near Corvallis, Rickreall, and Amity. Last year the first flies were found on June 16 in emergence cages.

Michigan. R. Hutson (June 12): Both the dark-banded and the light-banded cherry fruit flies have emerged earlier than usual. The dark-banded (R. fausta O.S.) was first obtained on Friday, June 1, at Gobles, and the white-banded (R. cingulata) was first taken this year at Saint Joseph. The emergence of both species was exceedingly rapid and

progressed from the Indiana line to the Grand Traverse district, practically 300 miles north, within a period of 1 week. The dates for emergence of the dark-bodied flies were June 4 at Grand Rapids and June 6 at Shelby, while the white-banded fly was taken at Beulah on June 7. (June 22): R. fausta emerged on June 14 at Northport and R. cingulata emerged on June 13 at Traverse City.

BLACK CHERRY APHID (Myzus cerasi Fab.)

Michigan. R. Hutson (June 13): Black cherry aphids are working on sweet cherries at Monroe.

Montana. A. L. Strand (May 29): A severe infestation occurred again this year in the Flathead Lake region. The stem mothers appeared on the buds as early as March 15 and spraying began on the 20th.

CHERRY LEAF BEETLE (Galerucella cavicollis Lec.)

Virginia. W. J. Schoene (June 6): A small red beetle has been reported as doing considerable damage to young foliage on cherry and peach in Rockingham and Augusta Counties. The same insect was reported at this season of the year in 1933. (Det. by H. S. Barber)

PLUM

THISTLE APHID (Anuraphis cardui L.)

Idaho. C. Wakeland (June 19): The thistle aphid caused more injury to prune trees in southern Idaho this year than during any preceding year. It is estimated that 50 percent of the prune crop is lost.

GRAPE

GRAPE LEAFHOPPER (Erythroneura comes Say)

Michigan. R. Hutson (June 12): The grape leafhopper is showing in enormous numbers in some vineyards in Berrien and Van Buren Counties.

Nebraska. M. H. Swenk (June 20): The grape leafhopper was working on woodbine and grape vines in Dawson, Sheridan, Dundy, and Harlan Counties, according to reports received from those counties on May 19, May 29, June 7, and June 16, respectively.

GRAPE PLUME MOTH (Oxyptilus periscelidactylus Fitch)

Massachusetts. A. I. Bourne (June 25): We received more complaints this year than usual during the early part of the month.

GRAPE CANE GIRDLER (Ampelogypter ater Lec.)

Massachusetts. A. I. Bourne (June 25): The grape cane girdler is reported by Professor Whitcomb as being considerably more numerous than usual in Middlesex County.

CURRENT AND GOOSEBERRIESCURRENT APHID (Myzus ribis L.)

Utah. G. F. Knowlton (May 25): Aphids are cupping and curling current leaves at Farmington. Some bushes are heavily attacked.

IMPORTED CURRENT WORM (Pteronidea ribesii Scop.)

North Dakota. J. A. Munro (June 14): The imported current worm is very abundant on gooseberries and currants at Fargo, Cass County.

GOOSEBERRY FRUIT WORM (Zophodia grossulariae Riley)

Minnesota. A. G. Ruggles (June 26): Z. grossulariae is wilting leaves of gooseberries from Aitkin.

Utah. G. F. Knowlton (May 25): Gooseberry fruit worms are now maturing at Farmington. They have caused moderate damage to gooseberries and currants.

CURRENT FRUIT FLY (Epochra canadensis Loew)

Minnesota. A. G. Ruggles (June 26): E. canadensis in gooseberries from Duluth.

BLUEBERRYBLUEBERRY SPANWORM (Itame inceptaria Walk.)

Maine. H. B. Peirson (June 13): The blueberry spanworm was reported from North Whitefield on June 13, where a heavy flight of moths were seen in blueberry fields.

CITRUSA TORTRICID LEAFTIER (Platynota stultana Walsm.)

California. E. A. McGregor (June 18): This tortricid caterpillar is attacking green oranges again in California. Damage to this crop had been unknown prior to the initial observations in 1933. In the Corona district certain orange groves on June 8 had from 50 to 80 percent of the small green fruits more or less damaged by this worm. It is known rather generally by the proposed name, "calyx worm."

FIGTHREE-LINED FIG BORER (Ptychodes trilineata L.)

Mississippi. J. M. Langston (June 22): A medium infestation in fig trees at Moss Point, Jackson County, was reported on June 15.

TRUCK - CROP INSECTS

BLISTER BEETLES (Meloidae)

Florida. J. R. Watson (June 27): The blister beetles, particularly the striped blister beetle (Epicauta vittata Fab.) has been very abundant during the past month. It has defoliated nearly all the black nightshades, Solanum nigrum and S. gracile, in Alachua County.

Wisconsin. C. L. Fluke (June 15): The gray blister beetle (E. cinerea Forst.) is infesting soybeans in Dane County, alfalfa in Clarke County, and small grains in Waukesha County.

Minnesota. A. G. Ruggles (June 26): The ash-gray blister beetle (M. unicolor Kby.) is very abundant in Big Stone, Chicago, Houston, Stevens, Yellow Medicine, and Lac Qui Parle Counties.

North Dakota. J. A. Munro and assistants (June): The ash-gray blister beetle is very abundant on caragana, alfalfa, etc., at Fargo, Cass County. The beetles are very abundant in Bowman, Burke, McKenzie, Morton, Stutsman, and Ward Counties.

Nebraska. M. H. Swenk (June 20): Inquiries concerning the control of the immaculate blister beetle (M. immaculata Say) on potatoes, tomatoes, and other garden truck, were received from several parts of the State. Other species of blister beetles reported are: M. unicolor, E. maculata Say, and E. lemniscata Fab.

Kansas. H. B. Hungerford (June 15): M. segmentata Say is doing much damage to potatoes in Washington County.

Tennessee. G. M. Bentley (June): Blister beetles, E. vittata Fab., E. cinerea, and E. pennsylvanica DeG., are reported as doing damage to various crops and flowers throughout the State.

FALSE CHINCH BUG (Nysius ericae Schill.)

Iowa. C. J. Drake (June 25): The false chinch bug has been reported from several counties in the State. Some injury has been reported in rape fields and on other Cruciferae. During the past 3 years false chinch bugs have been very abundant in practically every county in the State.

GARDEN SPRINGTAIL (Sminthurus hortensis Fitch)

Massachusetts. A. I. Bourne (June 25): Late in May and early in June we had several complaints of garden springtails occurring both in seed beds and on young garden plants that were just appearing above ground.

POTATO AND TOMATOCOLORADO POTATO BEETLE (Leptinotarsa decemlineata Say)

Delaware. L. A. Stearns (June 23): The Colorado potato beetle is very abundant throughout the State.

New York. N. Y. State Coll. Agr. News Letter (June): Larvae began to appear in numbers early in the second week of June on Long Island. Egg laying in Suffolk County reached its peak during the second week. The pest was also abundant in Nassau and Richmond Counties at that time.

New Jersey. R. C. Burdette, B. F. Driggers, and C. C. Hamilton (June 27): The Colorado potato beetle is very abundant.

Maryland. E. N. Cory (June 21): Very abundant and injuring tomatoes.

Minnesota. A. G. Ruggles (June 26): The Colorado potato beetle is very abundant.

Nebraska. M. H. Swenk (June 20): The Colorado potato beetle was reported as damaging potatoes and tomatoes from May 22 to June 12 in Lancaster, Merrick, Nuckolls, Howard, Furnas, and other Counties. The convergent ladybird beetle (Hippodamia convergens Guer.) was frequently reported as destroying the potato beetle eggs.

Tennessee. G. M. Bentley (June): The Colorado potato beetle is very abundant.

Utah. G. F. Knowlton (May 25): Adults have been taken only on volunteer potatoes in the southern part of Weber and the northern part of Davis Counties.

POTATO FLEA BEETLE (Epitrix cucumeris Harr.)

New Hampshire. L. C. Glover (June 25): The potato flea beetle is doing considerable damage to garden crops.

Massachusetts. A. I. Bourne (June 25): Flea beetles, particularly potato flea beetles, are more abundant than usual.

Connecticut. N. Turner (June 21): The potato flea beetle is very abundant.

Michigan. R. Hutson (June 12): Damage has been reported from practically all the southern half of the lower peninsula.

North Dakota. J. A. Munro (June 14): The potato flea beetle is troublesome to the potatoes and tomatoes at Fargo, in Cass County.

A CERAMBYCID (Prionus fissicornis Hal.)

Nebraska. M. H. Swenk (June 20): Larvae of this beetle were reported as doing considerable damage to potato vines in Deuel County on May 31.

TARNISHED PLANT BUG (Lygus pratensis L.)

Maryland. E. N. Cory (June 21): The tarnished plant bug is doing considerable damage to Irish potatoes in Worcester County.

Indiana. J. J. Davis (June 22): The tarnished plant bug was reported damaging blossoms of potatoes at North Judson on June 15.

POTATO LEAFHOPPER (Empoasca fabae Harr.)

Maryland. E. N. Cory (June 21): Potato leafhoppers are very abundant.

NORTHERN MOLE CRICKET (Gryllotalpa hexadactyla Perty.)

Indiana. J. J. Davis (June 22): Mole crickets were reported damaging potatoes at Elkhart on June 4. They were working in low ground.

GARDEN CENTIPEDE (Scutigera immaculata Newp.)

Maryland. E. N. Cory (June 21): The garden centipede destroyed almost an entire bed of tomato seedlings in Anne Arundel County and almost two thirds of the seedlings of second planting.

California. A. E. Michelbacher (June 23): In San Francisco the garden centipede (S. immaculata) was observed to be doing serious damage to snapdragons in a greenhouse.

BEANSMEXICAN BEAN BEETLE (Epilachna corrupta Muls.)

Connecticut. N. Turner (June 22): Damage in the southern part of the State seems slightly less severe than in 1933. However, egg mass counts show little difference. Apparently the severe winter had little effect on this insect.

New York. N. Y. State Coll. Agr. News Letter (June): Reported in Dutchess and Suffolk Counties during the first week in the month. On Staten Island it was defoliating beans. Egg laying occurred in Ulster County the first week and in Suffolk County was heavy during the second week of the month.
(Abs. J.A.H.)

Delaware. L. A. Stearns (June 23): The Mexican bean beetle is very abundant over the State.

Maryland. J. A. Hyslop (June 15): Very numerous and destructive at Avel.

E. N. Cory (June 21): The survival of Mexican bean beetles is 0.05 percent in cages at Salisbury.

South Carolina. F. Sherman (June 23): The Mexican bean beetle is more abundant than usual at Clemson College.

Georgia. O. I. Snapp (June 18): The Mexican bean beetle is more numerous than usual at Fort Valley and many reports of damage to the bean crop have been received recently.

T. L. Bissell (June 2): Adults were abundant and were feeding on foliage at Experiment on May 28, -only 1 egg mass found. The adults were feeding extensively on June 2 and 1 larva was found.

Indiana. J. J. Davis (June 22): The Mexican bean beetle was reported from many localities in the northern half of the State on June 14.

Illinois. W. P. Flint (June 23): A few reports have been received of injury.

Michigan. R. Hutson (June 13): Adults are present in bean plantings at Monroe and eggs are plentiful.

Tennessee. G. M. Bentley (June): In Knox County the Mexican bean beetle is less abundant than last year.

Alabama. J. M. Robinson (June 23): The Mexican bean beetle is more abundant than at any time since it entered Auburn.

Mississippi. J. M. Langston (June 22): A severe infestation on pole beans was reported by a grower at Hattiesburg, Forrest County, on May 27.

BEAN APHID (Aphis rumicis L.)

Maryland. E. N. Cory (June 21): The bean aphid is doing considerable damage in spots on the Eastern Shore.

SEED CORN MAGGOT (Hylemyia cilicrura Rond.)

Massachusetts. A. I. Bourne (June 25): Several reports were received of injury caused in market garden plantings in Hampden County. The injury was almost entirely confined to lima beans and the damage was so severe that several large plantings were harrowed up and the area planted to some other crop. The damage seemed to be confined to lima beans, while ordinary string beans growing in plots alongside showed either no injury or very slight injury in the rows immediately adjoining the lima beans.

PEAS

PEA APHID (Illinoia pisi Kalt.)

Michigan. R. Hutson (June 13): Pea Aphids have appeared in Ogemaw County at Rose City, and in Ionia County at Lake Odessa.

Wisconsin. J. E. Dudley, Jr. (June 15): High temperatures occurred throughout the pea-growing sections of Wisconsin during the last 2 weeks in May and the drought continued. These high temperatures, and especially the high maxima, were detrimental to the aphids and the infestation dropped off noticeably, so that by the latter part of May there was no serious infestation in any of the fields inspected around Madison, and the reproduction of aphids was very small.

CABBAGE

CABBAGE MAGGOT (Hylemyia brassicae Riley)

Massachusetts. A. I. Bourne (June 25): The cabbage maggot was very abundant this year, and we had many more complaints than usual regarding its attack.

New York. N. Y. State Coll. Agr. News Letter (June): In Cayuga County the flies had practically disappeared by the end of the first week. Severe injury by maggots in the western part of Suffolk County and one third of field plants in some untreated fields in Onondaga and Niagara Counties were destroyed by the end of the first week. (Abs. J.A.H.)

Montana. A. L. Strand (May 29): Severe infestations are present in western Montana, particularly in the Bitter Root Valley.

MELONSSTRIPED CUCUMBER BEETLE (Diabrotica vittata Fab.)

- Connecticut. W. E. Britton (June 23): The striped cucumber beetle is moderately abundant and in a few localities very abundant.
- Indiana. J. J. Davis (June 22): The striped cucumber beetle has been reported as destructive in a number of localities in all sections of the State beginning June 8.
- Michigan. R. Hutson (June 22): The striped cucumber beetle is very abundant.
- Wisconsin. C. L. Fluke (June 20): The striped cucumber beetle was found on beans in Douglas County; on 80 acres of corn in Walworth County, and on cucumbers in Milwaukee County. (June 23): Very numerous on cucumbers and melons in Crawford County.
- Minnesota. A. G. Ruggles (June 26): The striped cucumber beetle is very abundant.
- North Dakota. J. A. Munro (June 14): Plantings have been very seriously damaged by the striped cucumber beetle.
- Nebraska. M. H. Swenk (June 20): The striped cucumber beetle was reported on June 8 from Howard County, where it was doing much damage to watermelon vines, while several reports have been received from Lancaster County the past week.
- Kansas. H. R. Bryson (June 26): The striped cucumber beetle is very abundant on squashes and melons in the trucking areas near Manhattan.
- Tennessee. G. M. Bentley (June): The striped cucumber beetle is moderately abundant in Knox County.
- Mississippi. J. M. Langston (June 22): June 12 a correspondent at Friar Point, Coahoma County, sent to this office cantaloupes which had been injured by larvae feeding on the outside, where they came in contact with the ground. Injury of the same type was also found on cantaloupes at State College on June 15.

SQUASHSQUASH BUG (Anasa trista DeG.)

- Idaho. C. Wakeland (June 19): The squash bug has increased its distribution until we now find it generally distributed through southwestern Idaho and yesterday I picked it up at King Hill in central Idaho.
- Kansas. H. R. Bryson (June 26): Squash bugs are very abundant and are causing considerable injury in the eastern half of the State.
- Utah. G. F. Knowlton (June 11): Squash bugs are damaging squash plants at Hyde Park.

ASPARAGUSASPARAGUS BEETLES (Crioceris spp.)

Iowa. H. E. Jaques (June 25): Both the common (C. asparagi L.) and the spotted (C. duodecimpunctata L.) asparagus beetles are now moderately abundant in some parts of southeastern Iowa.

CELERYPARSLEY STALK WEEVIL (Listronotus latiusculus Boh.)

Michigan. R. Hutson (June 12): The parsley stalk weevil has caused considerable trouble in celery about Kalamazoo.

SEED CORN MAGGOT (Hylemyia cilicrura Rond.)

Michigan. R. Huston (June 12): The bean maggot, sometimes called the seed corn maggot (H. cilicrura R.), has been exceedingly troublesome in celery. This injury has been very markedly associated with the use of raw organic matter as top-dressing.

SPINACHSPINACH LEAF MINER (Pegomyia hyoscyami Panz.)

Connecticut. R. B. Friend (June 23): The spinach leaf miner infestation is light this year, but more abundant than it has been for 2 or 3 years.

New York. N. Y. State Coll. Agr. News Letter (June): The spinach leaf miner became abundant in Nassau and Richmond Counties during the first week in the month and was serious on beets and spinach in Nassau County by the end of the month.

Maryland. E. N. Cory (June 21): The spinach leaf miner is attacking spinach, beet, and turnip leaves at Cumberland.

STRAWBERRYSTRAWBERRY WEEVIL (Anthonomus signatus Say)

New Hampshire. L. C. Glover (June 25): Severe injury at North Stratford.

Massachusetts. A. I. Bourne (June 25): The strawberry weevil was reported as doing much damage to strawberry plantings in Falmouth.

Kansas. H. R. Bryson (June 26): The strawberry weevil has increased to outbreak numbers in two patches in Doniphan County.

STRAWBERRY ROOT WEEVILS (Brachyrhinus spp.)

New Hampshire. L. C. Glover (June 25): B. ovatus L. reported as severely injurious at North Stratford.

Utah. G. F. Knowlton (May 25): Strawberry root weevils and the rough strawberry weevil (B. rugostriatus Goeze) are damaging second-year strawberry plants at Bountiful. Stages from half-grown larvae to mature, dark-colored adults

were found, but most were in the pupal or early adult stage. Similar damage is also occurring in various parts of Utah and Cache Counties.

Oregon. D. C. Mote (May 28): Strawberry root weevil B. ovatus pupating and adults are appearing. Adults of the rough strawberry root weevil are also emerging.

A. TORTRICID (Ablabia longana Haw.)

Oregon. D. C. Mote (May 28): Strawberry and iris worms pupating, the first pupa being found on May 4.

MINT

MINT FLEA BEETLE (Longitarsus menthaphagus Gentner)

Indiana. J. J. Davis (June 22): Mint flea beetle very destructive in several localities in northern Indiana.

SUGAR BEETS

BEET LEAFHOPPER (Eutettix tenellus Bak.)

Idaho. C. Wakeland (June 19): Following the migration flight, tomato plants are blighted severely throughout the southern part of the State and bean plants are generally showing curly top. Curly top became so severe in the beet-growing districts in Twin Falls County that a large percentage of the beets have been plowed up and the prospect now is that there will be a very small acreage in southern Idaho.

SUGAR BEET ROOT MAGGOT (Tetanops aldrichi Hendel)

Utah. G. F. Knowlton (May 25): Sugar beet root maggots are reported as destructive at Hooper. (June 5): They are killing young sugar beets at Kaneshville, in Weber County, and (June 11) causing moderate-to-severe damage to sugar beets in the fields at Analga and Benson, reducing stands in some fields.

ZEBRA CATERPILLAR (Manestra picta Harr.)

Utah. G. F. Knowlton (June 5): Zebra caterpillars, attacking and webbing sugar beet foliage, were brought in from North Logan.

TOBACCO

A TOBACCO HORNWORM (Phlegethontius sp.)

Florida. F. S. Chamberlin (June 11): Infestations of the hornworm are about normal.

A SOD WEBWORM (Crambus sp.)

Maryland. E. N. Cory (June 21): Approximately one third of a 50,000-plant field in Anne Arundel County was injured.

FOREST AND SHADE - TREE INSECTS

PERIODICAL CICADA (Magicicada septendecim L.)

Virginia. W. S. Hough (June 4): A small brood of the seventeen-year cicada was reported from Frederick County.

Pennsylvania. J. L. Kinter (June 11): Immense numbers of the plague in the vicinity of Homer City, singing and laying eggs.

D. C. Washburn (May 28): Reported as appearing nightly in hordes near Lutzdale, Alleghany County.

Ohio. G. T. Greer (June 5): Cicada septendecim observed in Wick Park, Youngstown, Mahoning County, on May 27. Since that time they have increased to a normal number for any locust year.

Georgia. Wm. F. Turner (June 15): Great numbers of the periodical cicada heard singing in the extreme southern part of Pike County. (These belong to Brood XX of the 13-year race, a small brood recorded from northern Georgia. J.A.F.)

Kansas. R. H. Deamer (May 15 & 28): A few specimens of the form cassinii Fish were observed at Leavenworth on May 15, and at Lawrence on May 28. (These are possibly retarded specimens of Brood XIX, but this brood has never been recorded from Leavenworth or Lawrence. J.A.H.)

FALL CANCKER WORM (Alsophila pometaria Harr.)

Massachusetts, Connecticut, Rhode Island, and New York. J. V. Schaffner, Jr. (June): Several reports have been received on the abundance of this pest in eastern Massachusetts. The earliest spraying operations carried on by cities and towns against the gipsy moth and elm leaf beetle undoubtedly have prevented much defoliation by A. pometaria. In the Blue Hill section of Milton, Mass., from 50 to 100 acres of woodland and many shade trees of elm, oak, and ash were reported to be from 50 to 100 percent defoliated on June 6. C. E. Hood reported on June 14 that many shade, woodland, and apple trees in the vicinity of New Haven and North Branford, Conn., are quite badly infested. On May 31 many shade trees and some woodland areas in the vicinity of Cranston, R. I., were from 25 to 100 percent defoliated. On June 4 to 6 severe infestations were noted on shade trees, particularly elm, in apple orchards, oak woodlands, and in wastelands growing up with wild cherry and other deciduous growths. Woodland stripping is quite prominent in many localities as far north as Bedford Township. Many large elm shade trees are completely defoliated. In the northern part of this area some of the stripping in the oak woodland is due in part to the abundance of Phigalia titea Cram., Erannis tiliaria Harr., and other native species.

Connecticut. W. E. Britton (June 23): This insect has been unusually abundant and has defoliated unsprayed orchard and woodland trees in many small areas in Fairfield, Middlesex, and New Haven Counties.

SPRING CANCKER WORM (Paleacrita vernata Peck)

New York. H. C. Hallock (June 2): In the vicinity of Locust Valley, Brookville and Old Westbury, apple trees are 100 percent defoliated. At Hempstead Lake State Park (south of Hempstead) oaks are about 30 percent defoliated, and the annoyance caused by the worms has greatly reduced the number of people using the park.

Ohio. E. W. Mendenhall (June 6): The spring canker worm is quite bad here and there in Ohio this spring, attacking both apple and elm trees.

Michigan. E. I. McDaniel (June 14): Cankerworms were, if anything, more destructive than usual. The fall cankerworm (A. ponetaria) was the predominating species, and their attack was confined largely to elms.

Iowa. C. J. Drake (June 25): Canker worms (probably two or three species) defoliated many trees in the southern part of Iowa this spring. Considerable injury was done in an area about 40 to 50 miles long and several miles wide, extending east and west, south of Indianola.

Nebraska. M. H. Swenk (June 20): Elm trees in Frontier County were reported infested with the spring cankerworm on May 19.

FOREST TENT CATERPILLAR (Malacosoma disstria Ebn.)

Maine and New Hampshire. J. V. Schaffner, Jr. (June 20 and 22): Several areas of 2 or 3 acres up to 200 acres of woodland ranged from 25 to 100 percent defoliated in the towns of Parsonsfield and Limerick, Maine. Scattered infestations in Washington County, Maine, with defoliation estimated in some places up to 25 percent, have been reported. This species was abundant on sugar maple shade trees in Walpole, N. H., on May 27. C. W. Collins noted on June 21 that larvae were generally common in woodland wherever stops were made between Durham, N. H., and all towns surrounding Lake Winnepesaukee. At Farmington, N. H., some 30 ash and maple shade trees were from 50 to 100 percent defoliated.

Maine. H. B. Peirson (June 20): Very heavy outbreaks have been reported at Woodville, Mariaville, Limerick, Macwahoc, Pattahumpus, Augusta, and Kezar Falls. The caterpillars feed on white and gray birch, trembling aspen, largetooth aspen, sugar maple, oak, and some on beech.

New Hampshire and Connecticut. E. P. Felt (June 22): Caterpillars were received from Menox, Mass. They were observed in small numbers in the vicinity of Stamford, Conn., and have been reported as abundant in restricted areas in southern New Hampshire.

Vermont. H. L. Bailey (June 26): The forest tent caterpillar was moderately abundant in Windsor County on June 11. Caterpillars are noticeable, but not abundant, throughout most of the State, indicating a tendency toward increase.

Connecticut. M. P. Zappe (June 5): Larvae are very abundant on maple, oak, and other deciduous trees in Woodland Park, Meriden.

Minnesota. A. G. Ruggles (June 26): Reported from Saint Louis County around Ely.

A TENT CATERPILLAR (Molacosoma constricta Stretch)

California. D. F. Barnes (June 1): Scattered oak trees at the top of Pacheco Pass and for about 10 miles west of the summit, along the Los Banos-Gilroy road, were observed to be from 10 to 90 percent defoliated by the tent caterpillar (M. constricta) on April 27 and 28. Larvae were collected and reared. The adults were identified by H. E. Kiefer. No defoliation in the vicinity of Fresno has been observed by the writer during the last four seasons.

BROWN-TAIL MOTTH (Nygmia phaeorrhoea Don.)

Maine. H. B. Peirson (June 10): A local infestation was found at South Harpswe June 10 in spite of the severe winter.

GIPSY MOTTH (Stilpnotia salicis L.)

New England. J. V. Schaffner, Jr. (June 20): All reports indicate that infestations are generally light all through the infested area. In several places very few larvae could be found where rather severe infestations existed a year ago.

BRUCE'S SPANWORM (Rachela bruceata Hulst.)

Vermont. H. L. Bailey (June 26): Larvae were again abundant in certain northern areas of Vermont on sugar maple and beech. The infestation was less heavy than that of last year, when many maple sugar orchards in Franklin, Lamoille, Orleans, and Caledonia Counties were nearly defoliated. In some cases the under growth of young maples has apparently been killed by repeated attacks of these inch-worms. Feeding was completed about the first week in June and larvae went into the leaf mold and spun cocoons similar to those of Alsophil ponetaria. (Det. by W. T. Forbes). Many adults were appearing November 1, 1933.

A LEAF MINER (Prionomerus calceatus Say)

New York. E. P. Felt (June 22): The sassafras and tulip leaf miner (P. calceatus) is infesting sassafras at Westbury, L. I., and is also somewhat injurious to tulip.

BLACK VINE WEEVIL (Brachyrhinus sulcatus Fab.)

Massachusetts. J. V. Schaffner, Jr. (June 20): A nurseryman from Lynnfield brought in specimens on June 20 and reported injury to Japanese yew.

A SAWFLY (Profenusa collaris MacG.)

Massachusetts. E. P. Felt (June 22): The cherry and hawthorn sawfly leaf-miner (P. collaris) was reported as abundant on hawthorn foliage at North Andover.

OYSTER-SHELL SCALE (Lepidosaphes ulmi L.)

New York. R. E. Horsey (June 25): New scale was past moving and set on June 9 at Rochester.

Indiana. J. J. Davis (June 22): Oyster-shell scale was very abundant and destructive to ash at North Manchester on June 18.

Michigan. E. I. McDaniel (June 14): Infested lilac is common throughout the State.

ASHSAWFLIES (Tomostethus spp.)

Maine. H. B. Peirson (June 14): The ash sawfly (T. bardus Say) was defoliating brown ash at Augusta on June 14.

Pennsylvania. E. P. Felt. (June 22): Larvae of an ash sawfly, probably T. multicinctus Roh., were reported as numerous on ash in the Philadelphia area.

CARPENTER WORM (Prionoxystus robiniae Peck.)

Indiana. J. J. Davis (June 22): Adults were received from Walkerton on June 1. At the time the moths were laying eggs.

North Dakota. J. A. Munro (June 14): Most of the green ash at Fargo, Cass County, is badly infested and the worm is extending its attack to American elm and maples.

APPLE TWIG BORER (Amphicerus licaudatus Say).

North Dakota. J. A. Munro (June 14): The apple twig borer is reported to be moderately abundant on green ash at Van Hook, in Mountrail County.

ARIZONA ASH TINGITID (Leptocypha minor McAtee.)

California. C. S. Morley. Kern Co. Calif. Mo. Bull. (June 1): The Arizona ash tingitid has seriously injured many ash trees.

A LEAF GALL (Contarinia canadensis Felt.)

New York. E. P. Felt (June 22): Ash leaf gall (C. canadensis) was reported as being very prevalent on ash leaves in the vicinity of Albany.

Maryland. E. P. Felt (June 22): The same gall was reported as being numerous in the vicinity of Maryland State Forest Nursery.

BIRCH

BIRCH CASE BEETLER (Coleophora salmani Heinr.)

Maine. A. M. Gillespie. (June 22): Very heavy outbreak at Bar Harbor reported on June 22. Counts of 1,355 larvae from four sites show a winter mortality of 25 percent for 1933-34. Winter mortality for 1932-33 was 8 percent.

BRONZE BIRCH BORER (Agrilus anxius Gory)

Iowa. C. J. Drake (June 25): The bronze headed birch borer is doing considerable damage to birch trees at Fort Dodge, Nevada, Doone, and Jefferson.

IMPORTED BIRCH LEAF MINER (Fenusa punila Klug.)

Maine. H. D. Peirson (June 22): Imported birch leaf miner generally abundant in the State on June 22.

BOXELDER

BOXELDER PSYLLID (Psyllia negundinis Mally)

Utah. G. F. Knowlton (May 14): Psyllids are very abundant on boxelder leaves in Ogden Canyon.

ELMELM LEAF BEETLE (Galerucella xanthomelaena Schr.)

Vermont. H. L. Bailey (June 26): The elm leaf beetle was reported as moderately abundant in Brattleboro on June 21.

Michigan. R. Hutson (June 13): Eggs are present on the leaves of elm trees at Monroe.

Idaho. C. Wakeland (June 19): The elm leaf beetle has continued to spread until it is found generally throughout the Boise and Payette Valleys in southern Idaho. It is completely defoliating trees which are unsprayed. Much effort is being put forth by cities and individuals to protect their trees but when spraying has not been done many elms will probably be killed.

ELM LEAF MINER (Kaliosysphinga ulmi Sund.)

Maine. H. B. Peirson (June 9): Elm leaf miner (K. ulmi) was observed at Halloowell and Waldoboro on June 9. Heavy infestation on Camperdown and English elms.

Massachusetts. A. I. Bourne (June 25): The elm leaf sawfly is at least normally abundant. Some Camperdown elms show even more severe injury than usual.

ELM CASE BEARER (Coleophora limosipennella Dup.)

Massachusetts. A. I. Bourne (June 25): Several complaints have been received of unusual abundance of the elm case bearer.

MOURNING-CLOAK BUTTERFLY (Hamadryas antiopa L.)

Connecticut. W. E. Britton (June 23): Infestations at Hadlyme, Hamden, and Hartford as gipsy moth, and the residents were somewhat alarmed.

WOOLLY APPLE APHID (Eriosoma lanigera Hausm.)

Maine. H. B. Peirson (June 19): Apple and elm woolly aphid observed at Dixfield June 19. Very heavy injury on elms.

New Hampshire. L. C. Glover (June 25): Reported several times as doing injury to elm.

Vermont. H. L. Bailey (June 26): The woolly elm aphid is more abundant than usual on elm foliage. Many reports were received of "rosettes" on ornamental elms, especially in Montpelier and vicinity during the first half of June.

Connecticut. E. P. Felt (June 22): A woolly elm leaf aphid, probably Schizoneura lanigera, was abundant on certain elms in Lakeville.

Indiana. J. J. Davis (June 22): Elm rosette and leaf curl, resulting from woolly aphid attacks, have been reported from numerous localities in the State.

Maine. H. B. Peirson (June 9): Woolly elm aphid noted at Crouseville and Augusta on June 9.

WOOLLY ELM APHID (Eriosoma americana Riley)

Nebraska. M. H. Swenk. (June 20): The woolly elm leaf aphid (Schizoneura americana) was reported working on elm trees in Cheyenne County on June 11.

EUROPEAN ELM SCALE (Gossyparia spuria Mod.)

Indiana. J. J. Davis (June 22): European elm scale abundant on elms at Garfield May 25.

Illinois. W. P. Flint (June 23): The European elm scale is decidedly on the increase and is causing damage at many widely scattered points in central and north central Illinois.

Michigan. E. I. McDaniel (June 14): European elm scale (G. ulmi) has been reported from Niles, Coopersville, Battle Creek, Conklin, and Royal Oak. Young were beginning to emerge about June 7 in the vicinity of East Lansing.

Iowa. C. J. Drake (June 26): The European elm scale is unusually abundant in central Iowa. Considerable injury to young trees has been noted at Ames and Des Moines.

Nebraska. M. H. Swenk (June 20): The European elm scale was reported working on elm trees in Dodge County on June 1.

Ohio. C. Wakeland (June 19): The European elm scale was found in the vicinity of Moscow for the first time. It is generally distributed, probably because of the unusually mild winter of last year.

ELDERA NOCTUID (Luceria tranquilla viridula Grote)

Ohio. G. F. Knowlton (May 23): Caterpillars of this insect were defoliating Golden American elder at Farmington. Similar damage has been noted at Logan.

FIR

Maine. J. V. Schaffner, Jr. (June 20): R. C. Brown reports that several areas of fir at Indiantown are heavily infested.

AN APHID (Dreyfusia piceae Ratz.)

Maine. H. B. Peirson (June 7): Infestation of the balsam woolly aphid observed at Dalton on June 7; many trees dead.

R. W. Nash, Winter Harbor, Gouldsboro (May 18): Much fir dying.

AN APHID (Windarus abietinus Koch)

Maine. H. B. Peirson (June 10): The balsam aphid (M. abietinus) was abundant on ornamental trees at Augusta on June 10.

HEMLOCKPUTNAM'S SCALE (Aspidiotus ancylus Putn.)

New York. E. P. Felt (June 22): A scale insect, provisionally identified as A. ancylus occurred in abundance on a hemlock hedge at Scarborough, the abundance of the insects suggesting the early conditions of San Jose scale infestation on fruit trees.

JUNIPER AND CEDARA SCOLYTID (Phloeosinus sp.)

Mississippi. J. M. Langston (June 22): Virginia blue juniper twigs injured by beetles belonging to the genus Phloeosinus were received from Dentonia, Yazoo County, on June 21. The sender states: "It seems at present that the entire foliage is going to be stripped from the shrub."

LARCHLARCH CASE BEARER (Coleophora laricella Hbn.)

Maine. H. D. Peirson (June 1): Larch case bearer generally heavy over the State.

R. C. Brown (June 20): Thousands of acres of larch, all through the eastern part of the State, show the effects of a severe infestation of this case bearer.

MAPLEMAPLE NEPTICULA (Nepticula sericopeza Zell.)

Connecticut and New York. E. P. Felt (June 22): The Norway maple leaf stem miner was received from Westbury, L. I., accompanied by the statement that it was causing a considerable leaf-fall on trees not in fruit. This insect is moderately abundant in the Stamford, Conn., area on fruiting Norway maples.

MAPLE LEAF STEM BORER (Priophorus acericaulis MacG.)

Massachusetts. A. I. Bourne (June 25): In early June we received many complaints of the work of the maple leaf stem borer. Evidently it is more abundant this year than usual.

New York. E. P. Felt (June 22): The maple leaf stem borer has infested a considerable proportion of the lower leaves of Norway maple at Davenport Neck, New Rochelle, causing a heavy leaf fall.

NORWAY MAPLE APHID (Periphyllus lyropictus Kess.)

Massachusetts. J. V. Schaffner, Jr. (June 20): A heavy infestation on bronze leaf Norway maple in Plymouth was reported on May 23.

COTTONY MAPLE SCALE (Pulvinaria vitis L.)

Tennessee. G. M. Bentley (June): The cottony maple scale is abundant in the upper counties of western Tennessee.

JAPANESE MAPLE SCALE (Leucaspis japonica Oкл.)

Connecticut. W. E. Britton (June 23): The trunks of Japanese maples at New Haven are rather severely infested.

MAPLE BLADDER GALL (Phyllocoptes quadripes Shim.)

Connecticut. W. E. Britton (June 23): Maple bladder galls are abundant as usual on silver maples at Branford, Kent, Madison, Niantic, and Waterbury.

E. P. Felt (June 22): Maple bladder galls were received from Danbury, where they occurred in small numbers.

OAK

A PHYLLOXERA (Phylloxera sp.)

California. H. T. Ryan (June 20): An insect taken on white oak (Quercus lobata) has been determined as Phylloxera sp., with the comment: "Evidently new; at least new to the State." Because of the resistance of this insect to insecticide treatments the host has since been dug up and destroyed.

OAK TWIG PRUNER (Hypermallus villosus Fab.)

Massachusetts. A. I. Bourne (June 25): Several complaints have been received of the work of the oak twig pruner from various sections in the State.

Nebraska. M. H. Swenk (June 20): Specimens of the maple and oak twig pruner and its work on poplars were sent in from Cherry County on June 14.

PINE

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana Schiff.)

Connecticut. R. B. Friend (June 23): Pupae are much less abundant throughout the State on red pine than last year.

PINE TUBE MOTI (Eulia pinatubana Kearf.)

Maine. A. E. Brower (May 15-20): The pine tube moth was observed at Bar Harbor on May 15-20. Moths were flying.

PINE LEAF MINER (Paralechia pinifoliella Chamb.)

Massachusetts. J. V. Schaffner, Jr. (June 20): At least one acre of pitch pine next to the highway in a large woodland tract at Boylston was severely browned by this needle miner. A sample collection made on May 21 produced hundreds of moths and hymenopterous parasites during the first 3 weeks in June.

PINE BARK APHID (Pineus strobi Htg.)

Michigan. E. I. McDaniel (June 14): The pine bark aphid (Adelges pinicorticis) is common on white pines throughout the State.

PINE NEEDLE SCALE (Chionaspis pinifoliae Pitch)

New York. R. E. Horsey (June 25): The pine needle scale was reported moving during the first week in month at Rochester.

Nebraska. M. H. Swenk (June 20): A sprucetree was reported to be infested with pine leaf scale on May 26 by a Dundy County correspondent.

Utah. G. F. Knowlton (May 24): Pine leaf scales are damaging ornamental spruce trees at Fairview.

SCOTCH PINE LECANIUM (Toumeyella numismaticum F. and McD.)

Michigan. E. I. McDaniel (June 14): Specimens of the Scotch pine lecanium have been received from Rose City, where it is reported as infesting pines in sufficient numbers to be a decided detriment to the trees.

POPLARTULIP TREE SCALE (Toumeyella liriodendri Gmel.)

Mississippi. J. M. Langston (June 22): A heavy infestation found on tulip poplar twigs was received from a correspondent at McComb, Pike County, on May 26.

SPRUCESPRUCE GALL APHID (Chermes abietis L.)

Maine. H. B. Peirson (June 2): The spruce gall aphid (Adelges abietis) was observed at Monson on June 2. It was very severe in this area on ornamental spruces.

SPRUCE BUD SCALE (Physokermes piceae Schr.)

Michigan. E. I. McDaniel (June 14): The presence of spruce bud scale on Norway spruce on the campus of Michigan State College was first evident on May 28 and by June 2 the trees were coated with honeydew and were fairly alive with bees swarming over them feeding on the honeydew.

SPRUCE MITE (Paratetranychus uninguis Jac.)

Connecticut. E. P. Felt (June 22): The spruce mite is locally very abundant on spruce, badly infested twigs with numerous young having been received from Danbury.

WILLOWA CERCOPID (Aphrophora salicis DeG.)

Massachusetts. J. V. Schaffner, Jr. (June 20): This spittle insect was noted in abundance on willow trees in Boston. They were very abundant on willow in the Arnold Arboretum on June 17.

WILLOW LEAF BEETLE (Plagiodera versicolora Laich.)

New York and New England. E. P. Felt (June 22): The imported willow leaf beetle is becoming generally abundant on willows in southeastern New York and southwestern New England, with indications that there will be considerable injury

as the season advances.

ELM SAWFLY (Cimbex americana Leach)

Minnesota. A. G. Ruggles (June 26): C. americana is laying eggs on willows in Wright County.

INSECTS AFFECTING GREENHOUSE

AND ORNAMENTAL PLANTS

CHRISTMAS SUNFLOWER

MEXICAN MEALYBUG (Phenacoccus gossypii Towns. & Ckll.)

Florida. E. W. Berger and G. B. Merrill (June 22): A heavy infestation of the cotton mealybug on Christmas sunflower (Tithonia diversifolia) in a yard at Gainesville has been reported.

CRAPEMYRTLE

A FLEA BEETLE (Haltica vacciniae Blatch.)

Alabama. H. P. Loding (June 5): Flea beetles are very abundant and are attacking many plants, particularly crapemyrtle, large bushes being completely skeletonized in 24 hours. By sweeping 36 plants 373 beetles were obtained.

GLADIOLI

GLADIOLUS THRIPS (Taeniothrips gladioli M. & S.)

Wisconsin. E. L. Chambers (June 25): Early planted gladioli are already showing injury from gladiolus thrips in the southern section of the State and many requests are being received for control measures.

Iowa. C. J. Drake (June 25): The gladiolus thrips is unusually abundant in Story and Polk Counties. It will be necessary for many growers to spray in order to avoid serious injury.

Alabama. J. M. Robinson (June 23): The gladiolus thrips is moderately abundant at Birmingham.

GOLDENGLOW

CARROT BEETLE (Ligyrus gibbosus DeG.)

Michigan. E. I. McDaniel (June 26): The carrot beetle has been reported from Battle Creek as feeding on the roots of various annuals and perennials. As many as 27 beetles have been reported from the roots of one goldenglow. This beetle seems especially numerous in Michigan this year. We have taken it everywhere we have collected for June bugs.

IRIS

A CURCULIONID (Mononychus vulpeculus Fab.)

Massachusetts. A. I. Bourne (June 25): Professor Whitcomb reports the blue flag weevil (M. vulpeculus) injurious to German iris in gardens at Middlesex, Essex,

and Norfolk Counties.

Michigan. E. I. McDaniel (June 26): Found in iris at East Lansing. It is abundant in wild iris growing along the swamps and in some places does considerable damage to the buds before they open.

LILAC

LILAC BORER (Podosesia syringae Harr.)

Michigan. E. I. McDaniel (June 14): The lilac borer has destroyed a number of lilacs in Lansing and Grand Rapids. It has also been reported from Monroe and Ann Arbor. It seems particularly destructive on French lilacs.

MATRIMONY VINE

A GALL MITE (Eriophyes eucricotes Nal.)

Connecticut. E. P. Felt (June 22): The matrimony vine gall (E. eucricotes) is quite numerous in some localities in the Stamford area.

REDBUD

A LEAF ROLLER (Elechia cercerisella Cham.)

Kansas. H. R. Bryson (June 26): This leaf roller has caused considerable injury to redbuds at Manhattan. The leaves are folded and skeletonized by the larva giving the tree an unsightly appearance.

ROSE

ROSE CURCULIO (Rhynchites bicolor Fab.)

North Dakota. J. A. Munro (June 14): The rose curculio is moderately abundant. Reports indicate its general prevalence and injury to roses.

Utah. G. F. Knowlton (May 25): Injury to roses has been reported from several parts of the State.

BRISTLY ROSE SLUG (Cladius isomerus Nort.)

New York. R. E. Horsey (June 25): The bristly rose slug is common and is doing serious damage on climbing and other roses at Rochester. Larvae were 1/8 inch long on June 9.

SNOWBERRY

A SAWFLY (Abia inflata Nort.)

Massachusetts. J. V. Schaffner, Jr. (June 20): On June 13 this species was reported as having stripped the foliage from ornamental snowberry shrubs in Quincy.

SUMAC BEETLE (Blepharida rhois Forst.)

Massachusetts. A. I. Bourne (June 25): Early in June Professor Whitcomb reported that the jumping sumac beetle had been seen on Rhus copallina on the State highway planting in South Sudbury.

UMBRELLA TREE

CATALPA SPHINX (Ceratonia catalpae Bdv.)

Maryland. E. N. Cory (June 21): The catalpa sphinx is doing considerable damage to the umbrella tree in Prince Georges County.

WOODBINE

WOODBINE VEIN GALL (Dasyneura parthenocissi Stebb.)

Massachusetts. E. P. Felt (June 22): The woodbine vein gall was unusually abundant, deforming many of the leaves of woodbine in the Boston area.

LEAFHOPPERS (Cicadellidae)

North Dakota. J. A. Munro (June 14): Leafhoppers are very abundant on woodbine in Minot, Devils Lake, Fargo, Bowbells, and Dismarck. The vines are severely injured.

Kansas. H. R. Bryson (June 26): Leafhoppers (Erythroneura sp.) are reported to be injuring the leaves of woodbine at Manhattan and Bern.

I N S E C T S A T T A C K I N G M A N A N D

D O M E S T I C A N I M A L S

MAN

MOSQUITOES (Culicinae)

Oregon and Washington. H. E. Stage (June 4): Aedes aldrichi Dyar and Knab and A. vexans Meig. emerged from the flooded bottoms of the Columbia and Willamette Rivers the middle of May. They were very numerous in certain areas where control measures were not undertaken. Aedes hexodontus Dyar, A. aboriginis Dyar, and A. fitchii Felt and Young were not so numerous in mountainous areas because of a light snowfall during the past winter. All breeding had ceased by May 12 in the Cascade Mountains of southern Washington and Oregon. Culex tarsalis Coq. and Theobaldia incidens Thom. appeared much more numerous during May than in past seasons.

FLEAS (Otenacephalides sp.)

Texas. E. W. Laake (June 23): There have been an unusual number of reports of severe infestations of fleas from various sections of Dallas. One case brought to our attention was that of a 4-year old boy who was infested with at least 2,000 fleas on his head. Lesions as a result of flea bites covered approximately half of his scalp and hundreds of bites were also in evidence over his entire body.

SAND FLIES (Culicoides sp.)

Kentucky. W. A. Price (May 24): Punkies have been troublesome in the vicinity of Brandenburg.

ANTS (Formicidae)

Tennessee. The Commercial Appeal, Memphis. (May 30): A 3-month old child was seriously injured and probably permanently blinded by the severe bites inflicted by Formica trunicola integra Nylander, when left in a crib near a nest of this ant at Bells.

Mississippi. J. M. Langston (June 22): Fire ants (Solenopsis geminata Fab.) have been reported as very abundant in gardens, yards, and houses in almost all sections of the State. Complaints of injury to plants have been received in many instances, while a child in Starkville was severely stung by these ants.

BLACK WIDOW SPIDER (Latrodectus mactans Fab.)

Idaho. C. Wakeland (June 19): Much attention has been attracted to the black widow spider due to the very severe illness of a physician in the Grand View district who was bitten and has been in a state of coma for about 3 weeks. At this time he is reported as recovering. We have had this spider authoritatively reported from Pocatello, Twin Falls, Grand View, Boise, Parma, Fayette, and Lewiston.

Oregon and Washington. H. H. Stage (June 4): A severe epidemic of the black widow spider has been reported from Klamath Falls, Oreg., the last week in May. A correspondent writes, "Apparently millions of eggs have been laid as they are found in all rock gardens, and the young spiders are now hatching (June 1). People are very much aroused here, many rock gardens are being torn out, and thorough spraying of rock walls and gardens is being undertaken. I believe only one person has been bitten, and, while this individual is very sick, the bite was not fatal."

CATTLESCREW WORM (Cochliomyia macellaria Fab.)

Florida. J. R. Watson (June 27): A heavy infestation of the screw worm is reported in Alachua County, the heaviest that has yet occurred in this section according to the county agent.

HORN FLIES (Haematobia irritans L.)

Texas. E. W. Locke (June 23): Horn flies were very abundant in the vicinity of Dallas during the early part of June but have diminished, now averaging about 50 per animal on unsprayed cows.

CATTLE GRUBS (Hypoderma spp.)

Illinois and Iowa. Recovery Council (May 11): The European cattle grub (H. bovis DeG.) is much less abundant this year than for many years previous. In mature cattle the infestation is especially low, not averaging one grub per animal. This relative scarcity obtains throughout a part of northern Illinois and northeastern Iowa. At Galesburg, Ill., both the American cat-

grub (H. lineatum DeVill.) and the European form are relatively scarce. In the central part of Iowa, where the American form predominates, the herds are almost free from infestation this season.

HORSE

HORSE FLIES (Tabanidae)

Utah. G. F. Knowlton (June 5): Horse flies are seriously annoying livestock in the meadows between Brigham City and Corinne. Tabanus phaenops O. S. is the most abundant.

POULTRY

BILLBUGS (Calendra spp.)

Minnesota. A. G. Ruggles (June 26): C. aequalis Gyll. reported from Marshall, where chickens were being injured.

Iowa. C. J. Drake (June 25): At Des Moines C. aequalis was reported as the cause of the death of a small chicken.

Nebraska. M. H. Swenk (June 20): On June 15, a Clay County correspondent set in specimens of C. robustus Horn which she had found attached to the head and tibiae of chickens.

HOUSEHOLD AND STORED-PRODUCT INSECTS

A DRUG STORE BEETLE (Nicobium castaneum Oliv.)

Washington, D. C. Peter Bisset (May 31): The Bureau of Plant Quarantine received on May 21 a block of wood on which was an oil painting, referred to us by Mr. Woytych, Deputy Collector of Customs, City Post Office, Washington, D. C., who, in examining this block for customs purposes, found some living larvae in the wood. W. S. Fisher determined the specimens to be N. castaneum. Mr. Bisset does not know from what country the painting came, although the wrapper was marked "Via France."

BLACK FIELD CRICKET (Gryllis assimilis Fab.)

Illinois. C. L. Metcalf (June 20): Very unusual numbers of the black field cricket occur in many places in central Illinois. They are invading houses and stores, making themselves a nuisance, and in some cases are reported to be doing damage to dry goods and ready-to-wear articles.

DRIED FRUIT BEETLE (Carpophilus hemipterus L.)

California. Perez Simmons and Associates (June 1): This insect is more numerous in the Fresno area than during any spring since and including 1931, when census trapping was begun. The comparative catches are: 1931, 21,800; 1932, 1,800; 1933, 15,000; 1934, 29,600. (Figures by Dwight F. Barnes.)

NOTES ON HEMIPTERA AND HOMOPTERA COLLECTED IN MINAS GERAIS, BRAZIL, 1932-33

by

E. J. Hambleton

(Determinations made by P. W. Oman)

Pentatomidae:Acrosternum majuscula Dist. was taken from legumes in September 1933.Agroecus griseus Dallas was taken from legumes in June 1933.Danasa subrufescens (Walk.) was taken on legumes in April and May 1933.Dichelops furcatus Fab. was taken on various legumes in March and April 1933.Edessa meditakunda (Fab.) was very common on tomato plants during June and was collected on soybeans on March 14, 1933.Euschistus cornutus Dallas was taken on beans April 25, 1933.Euschistus heros Fab. was common on soybeans during March 1933.Euschistus illotus Stal. was taken on sword beans in April 1933.Mormidea V-luteum Licht was very common in rice fields during April 1933.Piezodorus guildinii (Westw.) was very common on many legumes in March and April. 1932.Proxys albo-punctulatus Pal. Beauv. was taken on rice on April 13, 1933.Solubea ypsilon-griseus Degeer was taken on rice and soybeans on March 14, 1933.Tynacantha cinctipes Stal. was taken on legumes in April 1933.Coreidae:Anasa scorbutica (Fab.) was taken on squash December 6, 1932.Corizus sidae (Fab.) was a serious pest of okra during March and April 1933.Crinocerus sanctus Fab. was reared from soybeans during May 1933.Cydamus trispinosum Degeer was taken on beans and mandioca during April and May 1933.Discogaster dentipes Stal. was taken April 20, 1933, from soybeans and rearedHarmostes prolixus Stal. was abundant on mandioca and soybeans during April 1933.Harmostes serratus (Fab.) was taken from a legume on March 21, 1933.Hymeniphera clavipes Fab. was taken on squash and anonaceae in March and September 1932.

Hypsilonotus striatulus dimidiatus Hahn. was taken on cotton for the first time on April 13, 1933.

Hypsilonotus interruptus lineaticollis Stal. was taken on legumes and citrus on April 3, 1933.

Leptocorisa filiformis (Fab.) was occasionally taken on mandioca and various legumes in April, May, and June 1933.

Leptoglossus stigma (Hbst.) was found feeding on citrus fruit June 15, 1933.

Megalotomus rufipes Westw. was abundant on field beans in April 1933.

Lygaeidae:

Geocoris pallipes Stal. was common on rice and on cowpeas and other legumes during April and May 1933.

Nysius basalis Dallas was very common on soybeans March 14, 1933.

Oncopeltus unifasciatus (Hahn) was found on oleander in March 1932.

Pyrrhocoridae:

Dysdercus fulvo-niger DeG. was very common on and injurious to cotton during May and June 1933.

Reduviidae:

Zelus armillatus Lep. & Sev. was found feeding on Chrysomelidae on corn plants on October 27, 1932.

Anthocoridae:

Orius insidiosus Say was very common on many plants, especially peanuts, on March 26, 1933.

Miridae: (Det. by H. G. Barber)

Collaria oleosa (Dist.) was taken on soybeans and crotonaria during March and April 1933.

Creontiades rubrinervis (Stal.) was taken on peanut plants and soybeans in March and April 1933.

Dolichomiris tibialis Reut. was taken on peanut plants in March 1933.

Garganus gracilentus Stal. was taken on peanut vines in March and April 1933 and were also common on legumes.

Hyaliodes quadristriatus Reut. was taken on soybeans on March 14, 1933.

Paracalocoris bimaculatus Fab. was rare on soybeans on April 10, 1933.

Polymerus cuneatus Dist. was taken on various legumes April 2, 1933.

Pycnoderes degeneratus Reut. was very abundant on squash and pumpkin in February 1933.

Cicadellidae:

Agalliana sticticollis Stal. was taken on potato foliage on June 2, 1933.

Cicadella leucomeles Walk. was taken on bean foliage on May 16, 1933.

Cicadella mollicella Fowl. was taken on bean foliage on May 16, 1933.

Cicadella quinquemaculata Germ. was taken on May 16, 1933, and was observed feeding on young sugarcane plants in June.

Cicadella tinctorula Osb. was abundant on citrus during May and June 1933.

Cicadella xanthophis Berg. was taken on May 16, 1933, and was seen on potato foliage in June.

Cicadula maidis DeL. was taken on bean foliage on May 16, 1933.

Deltocephalus flavicosta Stal. was taken on bean foliage on May 16, 1933.

Diedrocephala variegata Fab. was common on peanuts, beans, and potatoes during March and April 1933.

Eutettix dentatus Osb. was taken on May 23, 1933, and was observed on potato foliage in June.

Osbornellus mexicanus Osb. was taken on bean foliage on May 11, 1933.

Parallaxis vacillans McA. was common on bean foliage during May; taken June 2, 1933.

Platymetopius marginelineatus Stal. was taken on field beans May 23, 1933.

Scaphoidula cingulata Osb. was taken on bean foliage on May 16, 1933.

Thamnotettix colonus (Uhl.) was taken on bean foliage on May 16, 1933.

Thamnotettix hyalinipennis Stal. was taken on bean foliage on May 16, 1933.

Xerophloea viridis (Fab.) was taken on bean foliage on May 16, 1933.

Cicadidae:

Fidicina drewseni Stal. was taken on March 8, 1933; observed on Cassia sp. in July.

Fulgoridae:

Cyphonia trifida Fabr. was taken on soybeans and other legumes during March and April 1933.

Peregrinus maidis (Ashm.) was taken on potato foliage on June 2, 1933.

Sogata furcifera Horv. was taken on potato foliage on June 2, 1933.

Embracidae:

Aconophora ferruginea Fowl. was taken on peanut foliage April 20, 1933.

Bolbonata pictipennis Fairm. was taken on mandioca, Cassia sp., and citrus in March and December 1933.

Campylenchia nutans Germ. was taken on Cassia sp. April 7, 1933.

Ceresa vitulus (Fab.) was taken on mango foliage April 2, 1933.

Enchophyllum malaleucum Walk. was taken on plum and Cassia sp., a general feeder.

Stictopelta acutula Fairm. was taken on many legumes during March and April 1933.

INSECT CONDITIONS IN EGYPT MAY 22, 1934

By Arthur H. Rosenfeld,

Botanical and Plant Breeding Section, Ministry of Agriculture,
El Giza, Egypt

Aphis gossypii Glov. has been reported as lightly attacking ratoon and newly cultivated cotton plants on field edges.

Entomologist Muhammed Kanel reports that the woolly apple aphid (Eriosoma lanigerum Hausm.) is the most serious apple pest in Upper Egypt.

Lecanium persicae Fab. was found on grapevines in Shebin-el-Kom and on mulberry at Marg, the only two records for Egypt, according to Dr. H. Priesner.

The mealy plum aphid (Hyalopterus arundinis Fab.) was reported to be seriously injuring peaches in various localities in April.

Dr. H. Priesner reports mealy bugs Pseudococcus brevipes Cock. feeding on roots of Phoenix palm at Koubbeh Palace, Cairo. (Det. by E. E. Green)

The potato tuber moth, or tobacco split worm (Gnorimoschema operculella Zell.), is seriously infesting about 2,000 acres, or over one fourth of the entire Egyptian potato area, the summer crop grown in the Delta being invariably badly attacked. It is also reported on Solanums in Egypt.

Chionaspis euonymi Comst. was intercepted by the quarantine inspection service on mistletoe, an entirely new record.

Some thrips (Thysanoptera) attack has been noted in propagation fields of cotton, about 3 percent at Karakis Farm and 5 percent at Azab.

INSECT PEST SURVEY BULLETIN

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No. 6

THE MORE IMPORTANT RECORDS FOR JULY 1934

The grasshopper situation in the Great Plains remains unchanged. The hoppers are rapidly maturing and egg laying is taking place. Control measures will be continued throughout August over much of the territory. The outbreak in Wisconsin is reported as being the worst that has ever occurred in that State. In most of the infested area the campaign for the control of these insects has reduced damage to a low figure.

During the month there was a general outbreak of sod webworms over northern Indiana, central and north-central Illinois, and eastern Nebraska.

Red spiders are reported as doing unusual damage to a variety of plants. Reports indicate that because of the dry weather they are troublesome from Connecticut to Maryland, westward to Kansas, and southward to the Gulf. They are also occasioning considerable trouble in Kern and Los Angeles Counties, California.

The first of the annual wheat surveys to be reported indicates that the hessian fly infestation in Ohio was more than twice as severe as it was last year. Infestation was also severe in east-central Indiana.

A serious outbreak of the black grain-stem sawfly developed in western Pennsylvania and eastern Ohio.

During the month first-brood chinch bugs matured and flights were reported from all parts of the infested territory. Good growing weather in the Ohio River Valley materially improved corn-growing conditions, despite chinch bug damage.

Corn ear worm damage is reported from practically the entire United States. In the East Central States it was more abundant than it has been in several years, particularly in the fruit of tomatoes.

Reports from Nevada and California indicate that in general injury by the alfalfa weevil was less severe than last year.

This year the cotton leaf worm was first reported from Mississippi on July 26, early enough for broods of moths to develop, fly northward, and damage late fruit in the northern States.

Mature larvae of the codling moth were observed in New York by the middle of July and by the first of the month in Maryland and southern Pennsylvania. Second-brood moths began to emerge in Maryland during the first week in July, the peak of emergence occurring the second week. In the East-Central States development is about 2 weeks in advance of last year.

The apple aphid appeared in considerable numbers in the New England and Middle Atlantic States.

Plum curculio infestation in the Georgia peach belt was heavier than usual and Elbertas will be attacked by second-brood larvae. In Alabama the infestation of Carmen and Hiley peaches was the heaviest since 1918.

The grape leafhopper was very prevalent in the Lake region from New York to Minnesota, and some damage was reported southward through Nebraska to Kansas.

The green citrus aphid was reported as being more abundant than ever before recorded for this time of year in Florida, and as doing some damage to citrus in Louisiana. This insect also apparently increased in Puerto Rico.

The false chinch bug was very generally reported as damaging a variety of ornamentals and truck crops from Maryland westward to South Dakota and in the Great Basin region.

The tomato pin worm seriously damaged tomato plants in a greenhouse at Gulfport, Miss. This is the first record of this insect in that State, although it was observed by a grower last year, damaging both greenhouse and field-grown plants.

The Mexican bean beetle evidently suffered no serious setback by the severe winter of 1933-34, as it was quite generally abundant throughout its entire known range, northward to New Hampshire and Vermont.

The pea aphid was so abundant in New York State that in some areas as high as 25 percent of the late peas were plowed under. A similar situation was reported from Idaho and Washington.

The harlequin bug was evidently forced back by the severe winter to its normal range, as no reports have been received this year from the Northern States, into which it migrated during the past few years.

Heavy defoliation by the forest tent caterpillar was reported from the northern New England States.

The screw worm infestation in Florida and Georgia continued to increase during the month, being responsible for the loss of hundreds of cattle and hogs and some horses in the northern part of Florida and in southern Georgia.

THE MORE IMPORTANT RECORDS IN CANADA FOR JULY 1934

Conditions accompanying the drought have accentuated the grasshopper outbreak in the Prairie Provinces, particularly in Manitoba and Saskatchewan. The winged insects are migrating, but actual crop damage is limited to the southern districts. In Manitoba there is still a shortage of moisture and crops have suffered considerably from hot, dry weather, particularly in southern and western sections. Large numbers of grasshoppers have reached the winged stage and several extensive flights in northerly and easterly directions have occurred. In eastern Manitoba, where good control was obtained, poisoning operations ceased early in July, but were continued a few days longer in western Manitoba. In Saskatchewan control efforts have succeeded in keeping losses from grasshoppers generally low in areas having moisture sufficient for a fair crop, but in heavily infested, drier areas, it became necessary to cut much of the corn for fodder. General drought and warm weather in mid-July tended to increase hopper damage, and the situation is increasingly critical in the large southern area where moisture has been below normal throughout the season. In much of the central and west-central crop districts of Saskatchewan the outbreak is apparently largely under control for this season, unless extensive flights occur. Migrations are reported in various sections. In Alberta the control campaign has held crop losses from this pest to a minimum. A large proportion of the insects were winged by early July and by the middle of the month extensive migrations were taking place, with population increases reported from the foothills area. Some local losses were reported, but in most areas the grasshoppers were under control.

In Saskatchewan the season has been generally conducive to exceptionally severe wireworm injury.

In eastern Ontario a severe local outbreak of white grubs resulted in crop damage amounting to many thousands of dollars. Heavy flights of June beetles occurred this spring in southern Quebec, causing defoliation of trees and shrubs. Local flights were reported in Ontario.

The caragana beetle is again abundant and destructive to caragana and beans in parts of the Prairie Provinces. Infestations of several other species of blister beetles have been reported.

The striped cucumber beetle caused notable damage to untreated cucurbits in parts of New Brunswick and Ontario.

The rose chafer has again been a troublesome pest of garden plants, shrubs, and small fruits in sandy sections of southern Ontario.

Indications are that the codling moth will again cause serious losses in some orchards in the Niagara district, Ontario.

The apple curculio and the plum curculio are reported to have increased in abundance over previous years in orchard sections of southern Quebec.

Outbreaks of the rosy apple aphid and the black cherry aphid were reported in some orchards of the Niagara district, Ontario.

Forest tent caterpillars caused conspicuous defoliation of poplars and certain other trees in parts of eastern Canada, Saskatchewan, and eastern British Columbia. The fall cankerworm defoliated many valuable windbreaks in Manitoba and in parts of Saskatchewan.

GENERAL FEEDERS

GRASSHOPPERS (Acrididae)

Indiana. J. J. Davis (July 28): On June 21 grasshoppers (Melanoplus bivittatus Say) were first reported as abundant in Vanderburg County, where they were attacking corn and soybeans. A personal inspection on July 10 revealed an abundance of hoppers but as yet there is no serious damage, partly because of the excellent growth of the plants. The area infested is overflow ground.

Wisconsin. H. F. Wilson (June 30): We have had the worst outbreak of grasshoppers ever known to occur in Wisconsin. The infestation extends from west to east through the northern part of the State.

E. L. Chambers (July 30): Active poisoning is being continued in the extreme northern counties where the grain is being cut and the grasshoppers are migrating into corn and potatoes from hay and small-grain fields. Egg laying is taking place throughout the entire area. In most of the heavily infested counties large numbers of grasshoppers are being killed by thread worms and fungous diseases following several days of wet weather.

Minnesota. A. G. Ruggles (July 23): Grasshoppers are very abundant.

North Dakota. J. A. Munro (July 18): Crop destruction by grasshoppers has been held at a low figure, although spring infestation indicated almost complete destruction in many areas.

South Dakota. H. C. Severin (July 5): Grasshoppers are not nearly so abundant as we had every reason to believe they would be. This is probably due to the drought, which last fall, winter, and spring dried out and destroyed large numbers of eggs and which undoubtedly cut down the food supply so that there was not sufficient food of the proper type to keep some species; to the blowing of soil, which covered up immense numbers of eggs, especially along fences and roadsides; to heavy rains in some localities; and finally to the effective poisoning campaign being conducted in the State.

A. L. Ford (July 17): There are four distinct areas of heavy infestation, the largest of which is in the southeastern part of the State, extending along the Missouri River northward to Jerauld County and westward to Gregory. A smaller area along the western border of the State from Lawrence to Custer Counties; two smaller areas, one centering in Sully County and extending into Potter and Hughes and southeastern Armstrong and Dewey Counties, the other in northern Haakon and southern Ziebach Counties. M. bivittatus and M. mexicanus predominate throughout the State, being present in all sections. In the area which includes parts of Lawrence, Pennington, and Custer Counties there is a serious outbreak of the warrior grasshopper, C. pellucida. M. femur-rubrum DeG. is fairly abundant throughout the eastern half of the State, especially in alfalfa, but this species

does not predominate. As for M. differentialis Thos., a very peculiar situation has developed in this State. The fall survey showed that eggs of M. differentialis and M. bivittatus were present in nearly equal numbers in the heavily infested sections, and that the hatch of M. differentialis eggs, which occurred about two weeks later than that of the M. bivittatus, was about as we expected. In fact, in many places there was a very heavy hatch of the latter species. At present, however, there are very few M. differentialis hoppers in the State. What has happened to them is conjecture on our part. Apparently there has been some element in our very unusual weather that the young M. differentialis hoppers could not resist.

Nebraska. M. H. Swenk (July 17): The grasshopper situation has continued with unabated severity during June and up to the present time. About the same areas that showed a severe infestation by the middle of June are now infested, and all the poisoned bran bait has been used that could be obtained through the Federal agencies.

Oklahoma. C. F. Stiles (July 23): Grasshoppers are fairly numerous in some of the western counties, especially along roadways and fence rows, and in some instances have completely destroyed late-planted feed-stuffs, such as Sudan grass and grain sorghums. There are several species in the fields, but the yellow-legged grasshopper is the most prevalent in Kingfisher County.

Montana. A. L. Strand (June 28): The grasshopper campaign is progressing satisfactorily in most counties. In areas where the hoppers were more abundant than was expected there is a shortage of bait. Over most of the State good crops have demonstrated that the poisoning of the grasshoppers was very much worth while.

Wyoming. C. L. Corkins (July 26): We are now gradually bringing to a close the grasshopper control campaign which has been under way in 20 of the 23 counties of the State. When the campaign is completed a little over 6,000 tons of dry bait will have been used. So far the injury to crops has been only about 1 percent, but most of the range area in the eastern part of the State has been severely damaged.

Idaho. C. Wakeland (July 24): The grasshopper control campaign is nearly at an end. Grasshoppers have not caused extensive serious injury in any but isolated small communities because a well-coordinated control campaign has been carried out, using Federal bait. Some injury is being reported by farmers in areas where grasshoppers are migrating into cultivated crops from adjoining range lands. These hoppers are in the adult stage and control is not so satisfactory as earlier in the season. However, most communities are obtaining protection and there is very little serious injury.

Utah. C. J. Sorenson (July 27): M. bivittatus and M. femur-rubrum are moderately abundant in the Uintah Basin and in northern Utah.

Nevada. G. G. Schweis (July 20): The grasshopper control campaign has

been carried on in 13 counties. Results have been satisfactory in nearly all cases, especially in districts where the projects have been under direct supervision. The principal species present are: C. pellucida, M. mexicanus, and M. bivittatus.

Arizona. C. D. Lebert (July 24): Delayed hatches appeared late in June and early in July in the Salt River Valley. The adult population of the early hatch have been very well taken care of by the poisoned-bran campaign effected during the past 6 or 8 weeks. Incomplete reports from Navajo County indicate that the situation which was serious late in June is now much better. Poisoned bran is now being applied over approximately 1,200 acres with very satisfactory results.

California. Kern Co., Calif. Monthly News Bull. (July): The major insect damage to field crops was caused by grasshoppers, which threatened serious injury to the cotton crop in some areas. The commissioner obtained 25 tons of poison bran from the Government to be used in this work. Serious damage was prevented by the timely application of this material.

MORMON CRICKET (Anabrus simplex Hald.)

Montana. A. L. Strand (June 28): The Mormon cricket has increased enormously since last year. In addition to the counties of Big Horn and Carbon, where a major outbreak was expected and occurred, crickets have shown up in Judith Basin, Fergus, Pondera, Glacier, Chouteau, Lake, and Sanders Counties.

Wyoming. C. L. Corkins (July 26): The Mormon cricket outbreak previously reported is under control with little loss of crops.

Utah. G. F. Knowlton (July 9): A report of a rather severe outbreak of Mormon crickets on Cedar Mountain has been received.

Nevada. G. G. Schweis (July 2): The threatened outbreak failed to materialize. Rains that freshened the mountain vegetation apparently changed the line of march, so the bands turned again toward the mountains. One band nearly a quarter of a mile wide has been crossing the highway near Carlin for nearly 3 weeks.

CUTWORMS (Noctuidae)

Florida. S. E. Crumb (July 8): Climbing cutworms, which seldom cause appreciable damage to mature tobacco, were quite abundant in certain tobacco sheds in Gadsden County. They have been determined as Lyceophotia margaritosa saucia Hbn. and Prodenia ornithogalli Guen.

Oregon. D. C. Mote and assistants (June 29): The yellow-striped armyworm (P. ornithogalli) is present in a field north of Corvallis. This worm has been migrating northward for the past several years.

California. A. E. Michelbacher (July 22): In the territory about Tracy the larvae of P. praeifica Grote, and the alfalfa caterpillar (Eurymus eurytheme Bdv.) were found in fair abundance in some fields.

SOD WEBWORMS (Crambus spp.)

Indiana. J. J. Davis (July 28): Webworms are becoming abundant in lawns and golf greens throughout the northern half of the State.

Illinois. W. P. Flint (July 18): A general outbreak of sod webworms is present over the central and north-central parts of the State. It has been very largely confined to golf greens, an extremely heavy infestation having developed in some courses.

Nebraska. M. H. Swenk (July 17): Sod webworms did considerable damage to lawns and golf greens late in June and early in July in the vicinity of Lincoln.

WHITE GRUBS (Phyllophaga spp.)

Ohio. E. W. Mondenhall (July 24): White grubs are quite injurious in strawberry plantations in Fairfield County.

Kentucky. W. A. Price (July 25): White grubs very common in lawns and strawberry patches. Fields planted to strawberries in the spring of 1934 are now badly infested.

Tennessee. G. M. Bentley (July 21): P. ophilida Say is very abundant in the State at this time. At various places large swarms are eating heavily on shade and apple foliage. The duration of attack is brief.

GREEN JUNE BEETLE (Cotinis nitida L.)

Pennsylvania and Delaware. E. F. Felt (July 24): The green June beetle has been reported as numerous near Philadelphia, Pa., and near Wilmington, Del.

Ohio. T. H. Parks (July 10): These beetles were received from Adams and Hamilton Counties with the statement that they were flying about in lawns. Specimens were also observed in Licking County. No injury from larvae has been reported.

Missouri. L. Haseman (July 23): Green June beetles have been very abundant, clogging our codling moth bait traps.

Kansas. H. R. Bryson (July 25): C. nitida is reported to be injuring peaches near Chanute; as many as 100 beetles to the tree were observed.

A WIREWORM (Heteroderes laurentii Guer.)

Georgia. K. L. Cockerham (June 23 and 27): Discoveries in Decatur, Thomas, and Chatham Counties constitute the first authentic records of this pest's presence in the State of Georgia.

COMMON RED SPIDER (Tetranychus telarius L.)

- New York. E. P. Felt (July 24): A very severe infestation on linden was observed at Old Westbury, L.I., the leaves on the lower two-thirds of the top being very badly disfigured.
- Maryland. E. N. Cory (July 21): The red spider is attacking evergreens and flowering plants over the entire State.
- Ohio. E. W. Mendenhall (July 17): The red spider is quite injurious to arborvitae planted near houses in Springfield.
- Indiana. J. J. Davis (July 23): The red spider damaged moonflower vine at Winamac on July 13. Reports of red spider abundance on evergreens were received from Plymouth and Argos the last of June. Since the last of June a number of reports of injury to beans have been received from central Indiana.
- Illinois. W. F. Flint (July 18): Specimens are being received daily, especially from evergreens. Injury, accentuated by the extended drought, is somewhat more severe than normal.
- Kentucky. W. A. Price (July 25): The red spider is very injurious to evergreens and sycamore trees in the bluegrass area.
- Minnesota. A. G. Ruggles (July 23): Red spiders are very abundant on raspberries and evergreens and one apple tree is covered with them.
- Louisiana. H. L. Dozier (July 17): The common red spider is extremely abundant in New Orleans, working on lima beans, dahlias, and lady-slippers and, together with the extreme heat of the past few weeks, is proving very destructive. (July 19): Red spider is working on citrus foliage.
- Mississippi. J. M. Langston (July 23): Serious injury to phlox was reported from Byhalia, Marshall County, on July 9, while arborvitae plants at Clarksdale, Coahoma County, were reported to be heavily infested on July 12. Rather heavy infestations were observed during the past few days on cotton growing in fence corners and near old buildings in Tunica and several other Delta counties.
- Kansas. H. R. Bryson (July 25): Owing to the dry weather red spiders have been injurious to evergreens and beans at Manhattan and were attacking apple trees at Oxford.
- Utah. C. J. Sorenson (July 27): Red spiders are abundant on apple in the Provo district.
- California. Kern Co., Calif. Monthly News Bull. (July): The red spider has been our most destructive insect pest. It first appeared in March, and weather conditions have been ideal for its increase. It has been necessary to spray several times, and many trees that have not been

sprayed have turned completely brown from spider injury.

H. J. Ryan (July 24): The two-spotted mite has been unusually severe on bush berries in Los Angeles County.

CEREAL AND FORAGE - CROP INSECTS

WHEAT

HESSIAN FLY (Phytophaga destructor Say)

Ohio. T. H. Parks (July 18): The annual wheat insect survey by the Ohio entomologists just before harvest showed the average infestation of the straws to be 15.54 percent, as compared with 8.1 percent in 1933. Thirty-four wheat counties were visited and 10 to 12 fields were inspected in each county. County infestations ranged from 2 to 46 percent. Nineteen counties showed marked increases, 7 showed decreases, and in 8 the percentage of infestation remained about the same as in 1933. The insect has increased most in the northwestern quarter of the State. Considerable lodging of straw occurred in Wood, Seneca, Sandusky, and Huron Counties. The most heavily infested fields were in Wood County, where three fields each average 70 percent infestation. All of them were sowed 2 or 3 days before the safe-sowing dates. In many fields sowed after the safe-sowing dates the infestation averaged between 30 and 50 percent. No serious damage was caused by the fall brood, the great increase being due entirely to the spring brood.

BLACK GRAIN-STEM SAWFLY (Trachelus tabidus Fab.)

Pennsylvania. E. J. Udine (July): An outbreak occurred in the counties of Indiana, Armstrong, Butler, northern Westmoreland, Allegheny, Mercer, Lawrence, and Beaver.

Ohio. J. S. Houser (July 31): This sawfly was found in Ohio for the first time this year. The infestation centers in Mahoning, Columbiana, Carroll, Harrison, and southern Trumbull Counties, and light infestations occur in northern Trumbull, Portage, Stark, eastern Wayne, Tuscarawas, Belmont, and northern Monroe Counties. The most severely infested field of wheat had 68 percent and several other fields in the area of greatest abundance had 50 percent or more of the stems infested. One field of rye averaged 16 percent infestation. The crop loss is great. (Det. C. C. Hill)

CORN

CHINCH BUG (Blissus leucopterus Say)

Ohio. T. H. Parks (July 18): The chinch bug battle over, we find that 50 of the 88 counties required aid in controlling the insect with barriers. This was the worst infestation for many years, although very few fields of corn were destroyed, good growing weather having

helped it. Small grains did not suffer much. Serious injury occurred in several northeastern counties and particularly in Geauga County, where for many years previous the insect has not been a pest. Bugs began moving out of the wheat in central counties about June 20 and in northeastern Ohio about July 1. Some reports were received of injury to lawns.

Indiana. J. J. Davis (July 28): Mature bugs are plentiful and a few recently hatched bugs are common in most cornfields. Yesterday in De Kalb County we observed several that had just changed to adults. They were apparently some of the last of the first generation to mature. Weather conditions have been favorable to the bug.

Illinois. W. P. Flint (July 18): The first-brood chinch bugs have nearly all matured, except in the extreme northern part of the State. General flights have been occurring daily during July and the bugs are now very thoroughly distributed over the cornfields. Since the first of July showers have occurred at frequent intervals in most sections of the State. The rainfall has not been sufficiently heavy to cause the death of any of the bugs, but has greatly improved the condition of the corn. The damage from the bugs will not be as heavy as was believed last month, but may still run to 30 or 40 percent of the corn crop.

Michigan. R. Hutson (July 16): The most northern chinch bug infestation is at Morrice in Shiawassee County. (July 23): The chinch bug is very abundant.

Wisconsin. E. L. Chambers (July 30): Chinch bugs have been showing up in large numbers in Buffalo, Pierce, Pepin, Kenosha, and Racine Counties, and have been very destructive in small patches of corn and Sudan grass, and have done serious injury to small grains that were beginning to head. They did not develop in destructive numbers until after the middle of July, when most of them appeared in the winged form; consequently, very few barriers were attempted.

Minnesota. A. G. Ruggles (July 28): The chinch bug is very abundant and is doing considerable damage in Goodhue County.

Nebraska. M. H. Swenk. (July 15): The infestation in southeastern Nebraska did not expand in extent after June 20. The migration of the young bugs was at its height by June 10 and continued heavily until about June 20, when it gradually began to fall off. Within less than a week large numbers of adult winged bugs were noted, flying from the small grain into the corn; and the creosote barriers then began to diminish steadily in effectiveness. Nevertheless, over 100,000 gallons of creosote was distributed to the farmers in 14 southwestern Nebraska counties, and it is reported that a very large acreage of corn has been saved. There are numbers of the adults in the cornfields at this time, however, and the results of the attack by the second brood are still to be learned.

Kansas. H. R. Bryson (July 25): Chinch bugs are only moderately abundant at Manhattan. Corn, sorghums, and grassed-in fields, which furnish

food materials for the second generation, are drying up on account of the high temperatures and the lack of soil moisture. Old bugs are scarce in corn and sorghums, where they were very abundant after harvest. No eggs and a very few nymphs, representing all instars, could be found between the leaf sheath and the stalk in young sorghum plants. Reports of abundance have been received from Downs, Osborne County. Concentrated and well-planned efforts to control the chinch bug and protect the rowed crops with barriers resulted in a State-wide reduction in the damage that might otherwise have occurred.

CORN EAR WORM (Heliothis obsoleta Fab.)

Connecticut. R. B. Friend (July 23): Larvae have been found but were not common in Stratford, Hamden, and Glastonbury during July.

New York. N.Y. State Coll. Agr. News Letter (July): First larvae of the corn ear worm were observed early in the month on Long Island. By the middle of the month they were seriously abundant. (Abstract J.A.H.)

West Virginia. L. M. Fenirs (July 21): The corn ear worm is moderately abundant.

W. J. Schoene (July 25): The corn ear worm has been reported frequently from the mountainous part of the State as causing serious injury to tomatoes and to fields of young corn. Although we have a little injury every year from this species, it is much more conspicuous than usual.

Virginia. H. G. Walker (July 26): The corn ear worm is from moderately abundant to very abundant on corn and tomatoes at Norfolk.

Illinois. W. F. Flint (July 18): The corn ear worm has been unusually abundant. Most of the injury occurred from the boring of the worms in the curl of the corn leaf. Field corn is just beginning to silk in most fields in central Illinois.

Ohio. T. H. Parks (July 18): Corn ear worms ruined the early crop of tomatoes in counties along the Ohio River. Many samples are being received, together with injured corn leaves, showing where the larvae fed on the opening leaves in the heart of young plants. We look for heavy damage to the ears later.

N. F. Howard (July 19): A serious infestation on tomato occurred in the Marietta district late in June and early in July. Twenty to 40 percent of the early clusters of tomatoes were wormy. I estimate the loss to the growers as somewhere between \$25,000 and \$35,000. Several years ago the tomato fruit worm began to be a factor in early tomatoes and became more serious until last year it constituted a real problem. This year it is more serious than ever, notwithstanding the severe winter of 1933-34.

Indiana. J. J. Davis (July 23): From June 27 to July 9, numerous reports were received from all sections of the State, especially from southern Indiana, of an abundance of the corn ear worm working in the

tassels. This indicates a heavy infestation of ears a little later in the season.

Kentucky. W. A. Price (July 25): Damage is more severe than at any other time during the past 5 years. In many cornfields one-fourth of the stalks were ruined before the tassels appeared. Practically every roasting ear on the Lexington and neighboring markets contains worms.

Wisconsin. E. L. Chambers (July 30): The corn ear worm is apparently now on the decline, after the first generation had destroyed enormous quantities of sweet corn and early field corn, the damage in some fields running as high as 50 percent. The insect is occurring throughout the State in large numbers for the first time in many years. Late sweet corn is apparently coming to the market free from the borer, whereas early crops were hardly marketable because of a heavy infestation.

Minnesota. A. G. Ruggles (July 28): All over the State the corn ear worm is damaging the tassels of young corn before they appear. It is 6 weeks ahead of schedule.

South Dakota. H. C. Severin (July 16): The corn worm is much more abundant than usual in eastern part of the State. Worms are now attacking stems and rolled-up leaves of field corn, sweet corn, and pop corn.

Iowa. C. J. Drake (July 2): The corn ear worm is extremely abundant and is tunneling the stalks and destroying the buds and tassels. One farmer reported that from 10 to 90 percent of the stalks were infested, and from 25 to 40 percent are infested in a great many fields. Unless halted, the ear worm will do a great deal of damage to the ears this summer. It is also feeding on soybeans. The large ear worms are beginning to pupate.

Missouri. L. Haseman (July 23): First-generation ear worms worked in the tassels, but late generations will find a scarcity of food, owing to the drought. Some are found in green tomatoes.

Tennessee. G. M. Bentley (July 21): The corn ear worm is moderately abundant throughout the State, but notably scarcer than last year.

Mississippi. M. M. High (June 4): The tomato fruit worm was found destroying squash blooms and young fruit at Loudon.

Nebraska. M. H. Swenk (July 15): During the period from June 29 to July 11 the first-brood caterpillars were very abundant in the young corn over Nebraska, as far west as the 100th meridian, and especially in certain sections of this area. The caterpillars did their greatest damage by boring into and largely consuming the developing tassels of the corn, although in some fields they also bored through and badly damaged the unfolding leaves, as high as 30 to 40 percent of the corn stalks being thus attacked. The stems of tomato plants, the young tomato fruits in some cases, and bean pods were also attacked. The damage was much more extensive and intense this year than in 1931, when first-brood cater-

pillars did a great deal of damage to young corn in eastern Nebraska, from the Missouri River between Richardson and Cedar Counties west to Madison, Valley, and Buffalo Counties.

Kansas. H. R. Bryson (July 25): The corn ear worm was reported to be injuring tomatoes at Norton and has caused considerable injury to the curl and tassels in various localities.

California. H. J. Ryan (July 24): The corn ear worm has been much more abundant than usual in Los Angeles County.

SOUTHERN CORN STALK BORER (Diatraea crambidoides Grote)

Virginia. F. W. Poos (July 10): Considerable injury has been done to some early planted fields at Holland, prompting inquiry by a farmer as to the cause of damage.

A FLEA BEETLE (Systema taeniata blanda Melsh.)

Ohio. T. H. Parks (July 1): The pale-striped flea beetle (S. taeniata blanda) was very injurious to young corn in June. Damage was most severe in northern counties. It also attacked beets, tomatoes, cucumbers, and other garden crops.

Minnesota. A. G. Ruggles (July 28): This flea beetle was reported from Lowiston as infesting beans, corn, and Canada thistle.

A BILLBUG (Calendra maidis Chitt.)

Mississippi. J. M. Langston (July 23): A billbug collected in a cotton field at Columbus, Lowndes County, on July 11, was identified by A. F. Satterthwait. This is the first record of this species in Mississippi.

ALFALFA

ALFALFA WEEVIL (Hypera postica Gyll.)

Utah. C. J. Sorenson (July 27): Adults of the alfalfa weevil are moderately abundant in northern Utah and the larvae are scarce.

Nevada. G. G. Schweis (July 2): The weevil damage for the season is over, and in the State as a whole the damage was less severe than for some years past. But in a few localities it was very severe and the worm population was enormous. (July 20): Adults are numerous in fields where the first crop was cut late.

California. A. E. Michelbacher (July 22): In the Tracy region the alfalfa weevil is rather scarce. The highest average collection per 100 sweeps of a net was 38 larvae on July 16. About Pleasanton the highest counts were 130. In the Niles area larvae were most numerous, and the highest average count in any field was 238.

SUGARCANE

SUGARCANE BORER (Diatraea saccharalis Fab.)

Louisiana. W. E. Hinds (June 29): The sugarcane borer received a decided setback during the very severe Gulf hurricane which swept across most of the Louisiana cane belt on June 16. In much of this area wind velocities ranged from 50 to 70 miles per hour. A heavy rainfall occurred also. Corn, which was then nearly mature (where most of the borers were reaching maturity at the end of the first generation), was whipped to shreds and the loss in yield will be heavy. Most of the first-generation adults, which were then active and laying eggs, were killed by the storm and the eggs laid on the foliage of corn and cane were washed or whipped off and destroyed. Many of the very young borers then in the leaf rolls also seem to have perished. As a result, through the area most severely affected by the storm there is a rather serious injury to certain very tender varieties of cane, but a compensating destruction of borers may finally benefit the yield of cane as much as the storm damaged it directly.

VETCH

A BRUCHID (Bruchus brachialis Fabricius)

Pennsylvania and North Carolina. C. C. Hill (July 30): An infestation is occurring in hairy vetch near Waynesboro, Franklin County, Pa. Specimens have been taken at Salisbury, Rowan County, and at Statesville, Iredell County, N.C.

F R U I T I N S E C T S

COTTON LEAF WORM (*Alabama argillacea* Hbn.)

Mississippi. R. W. Harned (July 26): There is an outbreak of cotton leaf worms at Agricola, in George County. This is the first report we have received this year from this State. (This is early enough for later broods of moths to damage fruit in the northern States. J.A.H.)

APPLE

CODLING MOTH (*Carpocapsa pomonella* L.)

New York. N. Y. State Coll. Agr. News Letter (July): During the first week in the month the codling moth became noticeably more abundant in the Hudson River Valley, and reports of rather severe damage were quite generally received from the western part of the State. By the middle of the month larvae were leaving the fruit in the Hudson River Valley. (Abstract J.A.H.)

Pennsylvania. H. N. Worthley (June 30): Mature larvae of first brood were found under bands in Adams County on June 20, just as emergence of overwintered brood moths ended. Evidences of attack, which were scarce during the early part of June, became plentiful during the latter part of the month.

Maryland. E. N. Cory (July 21): Second-brood moths began to emerge on July 2 at Hancock; egg deposition started on July 4; hatching on July 9; and the peak of emergence occurred on July 10.

Ohio. T. H. Parks (July 18): Larvae of the first brood were very numerous in unprotected fruits over the State. Forty percent of the apples on an unsprayed tree near Chillicothe were infested on June 20. Extra cover sprays have been applied in most orchards. The second generation of moths began emerging about 10 days earlier than last year.

Illinois. W. P. Flint (July 18): The codling moth, on the whole, is more abundant than last year. Development is nearly 2 weeks in advance of last year and it is probable that as severe an infestation will develop as in 1933.

Kentucky. W. A. Price (July 25): The codling moth is very abundant.

Minnesota. A. C. Hodson (June): Codling moths are scarce in southeastern counties; the mortality during the winter was high.

Missouri. L. Haseman (July 23): The peak of second-brood moth emergence occurred between June 23 and July 14, but eggs and worms have been relatively scarce.

Howard Baker (June 15): The dry weather which persisted in this region (Saint Joseph) through nearly the entire period of the first brood resulted in an infestation of unusual intensity, which will result in the loss of a high percentage of the crop, as the development of the insect

is so far in advance of normal.

Kansas. H. R. Bryson (July 25): At this date a few codling moths of the latter part of the second brood are emerging at Oxford. Damage is severe in some old blocks of trees in Doniphan County, where orchard sanitation was not practiced last winter. The apple crop in general is much cleaner than last year.

Nevada. Geo. G. Schweis (July 2): The codling moth is moderately abundant on unsprayed fruit in western Nevada.

Oregon. D. C. Mote and assistants (June 29): The infestation around Corvallis is perhaps a little lighter than normal but heavier than last year. First brood moths are still emerging. The worms are beginning to come down into the bands and second-brood moths are expected in about 10 days. (July 24) The third cover spray is now being applied for second-generation codling moths in the Willamette Valley. Many pupae of the first generation still under the bands.

Washington. E. J. Newcomer (July 26): The codling moth is less abundant than last year on apple and pear in the Yakima Valley, and has been more easily controlled, owing to cooler weather.

APPLE APHID (Aphis pomi DeG.)

Massachusetts. A. I. Bourne (July 25): The green apple aphid began to appear in considerable abundance in many of the orchards near Amherst during the last 2 or 3 weeks, when there have been practically a total deficiency of rainfall and several periods of extremely high temperature. Up to the first of July twigs were beginning to recover from the winter injury. This infestation is affording quite an acute problem in these winter-injured orchards.

Connecticut. P. Garman (July 23): A. pomi is causing injury to fruit in some orchards in New Haven and Hartford Counties, but is not especially abundant.

New York. N. Y. State Coll. Agr. News Letter (July): Green apple aphids are increasing in both the eastern and western apple districts and are becoming serious in some unsprayed orchards. (Abstract J.A.H.)

Montana. A. L. Strand (June 28): The green apple aphid is very injurious.

Oregon. D. C. Mote and assistants (June 29): The green apple aphid is more numerous at Corvallis than for many years.

APPLE MAGGOT (Rhagoletis pomonella Walsh)

Connecticut. P. Garman (July 23): Flies are emerging in abundance in New Haven County.

New York. N. Y. State Coll. Agr. News Letter (July): During the first week of the month adults were emerging in cages in Orange County and egg punctures were observed in the field in the Hudson River Valley. The peak of emergence occurred during the second week in the month. (Abstract J.A.H.)

EUROPEAN RED MITE (Paratetranychus pilosus C. & F.)

Connecticut. P. Garman. (July 23): More abundant in Hartford and New Haven Counties than at any time during the last 2 or 3 years.

PEACH

ORIENTAL FRUIT MOTH (Grapholitha molesta Busck)

Connecticut. P. Garman. (July 23): Twig injury fairly abundant in many orchards.

New York. N. Y. State Coll. Agr. News Letter (July): Generally abundant throughout the State; more serious than last year. (Abstract J.A.H.)

Delaware. L. A. Stearns (July 24): Parasitization of the first brood of the moth is 75 percent.

Pennsylvania. L. L. Guyton (July 23): Moderately abundant in Franklin, Adams, and York Counties.

Virginia. W. J. Schoene (July 25): In the early season a very heavy emergence of adults occurred, resulting in a very severe twig injury in all orchards. Reports now indicate that the population has decreased and that this is due to the work of the parasites.

Alabama. J. M. Robinson (July 21): Very abundant on peach twigs in Prattville.

Michigan. R. Hutson (July 23): The oriental fruit moth is moderately abundant.

Tennessee. G. M. Bentley (July 21): Moderately abundant throughout the State; some damage to apples and peaches.

PEACH BORER (Aegeria exitiosa Say)

Georgia. O. I. Snapp (July 19): Although the first adult of this season emerged at Fort Valley on June 18, the earliest emergence record for this latitude, very few have yet emerged.

PLUM CURCULIO (Conotrachelus nemophar Hbst.)

Connecticut. P. Garman (July 23): Damage is very severe in orchards interplanted with peaches, but the curculio is well controlled in orchards not interplanted and using an adequate spray schedule.

Georgia. O. I. Snapp (July 9): Egg deposition by the second generation began at Fort Valley on July 9 by adults which emerged on June 18; therefore, the Elberta, which is the chief commercial variety of peach in Georgia, will be subjected to an attack by second-brood larvae. The infestation is now heavier than average. (July 20): Second-brood larvae are showing up in the Elberta peaches, which are just beginning to ripen. That is the last commercial variety of peach to ripen in Georgia.

Tennessee. G. M. Bentley (July 21): The plum curculio is moderately abundant throughout the State; decidedly less than last year.

Alabama. O. I. Snapp (July 11): The curculio infestation in Carman and Hile peaches at Prattville is reported to be the heaviest since 1918.

Minnesota. A. C. Hodson (June): Moderately abundant in southeastern part of the State, particularly on plums; the greatest injury is to apples.

North Dakota. J. A. Munro (July 16): Moderately abundant on plum at Mandan, in Morton County.

PEAR

PEAR PSYLLA (Psyllia pyricola Foerst.)

Connecticut. P. Garman (July 23): Very abundant in New Haven County.

New York. N. Y. State Coll. Agr. News Letter (July): Large numbers of pear psylla eggs were laid during the early part of the month in the Hudson River Valley. First-instar larvae were observed on June 12 in Ulster County. By the middle of the month they were very numerous and were doing considerable damage. (Abstract J.A.H.)

CHERRY

CHERRY FRUIT FLY (Rhagoletis cingulata Loew)

Oregon. D. C. Mote and assistants (June 29): Apparently reached a peak of emergence in the earlier locations in the Willamette Valley about May 23, and in the later localities on June 5. On June 25 a few flies were still emerging in both the early and late localities. The first oviposition was observed in Bing cherries on June 8. First-instar larvae were found on June 11. Full-grown larvae and respiration holes in cherries were observed on June 21. (July 24): Maggots of all sizes observed on July 17. Last emergence of adults in cages observed July 13. Still plenty of flies in infested orchards.

PEAR SLUG (Eriocampoides limacina Ratz.)

Oregon. E. J. Newcomer (July 26): Defoliating cherry trees near La Grande.

BLACK CHERRY APHID (Myzus cerasi Fab.)

Montana. A. L. Strand (June 23): The cherry aphid has caused extensive injury in unsprayed cherry orchards in the Flathead district.

CHERRY LEAF BEETLE (Galerucella cavicollis Lec.)

West Virginia. S. M. Peairs (July 21): The most important outbreak of the cherry leaf beetle since 1915 occurred this year. It covered the northern half of the State and was also present farther south.

PLUM

OBLIQUE-BANDED LEAF ROLLER (Cacoecia rosaceana Harr.)

Oregon. D. C. Mote (July 24): At Milton and Freewater, larvae, pupae, and adults of the oblique-banded leaf roller are numerous on prunes; injury very severe. There is evidence of heavy parasitization of the larvae.

RASPBERRY

RASPBERRY CANE BORER (Oberea bimaculata Oliv.)

Maine. H. B. Peirson (July 10): The raspberry cane borer is very abundant in Augusta.

Vermont. H. L. Bailey (July): The raspberry cane borer is unusually abundant.

Wyoming. C. L. Corkins (July): The two-spotted Oberea has been taken on raspberries this summer for the first time in my experience in the State.

A WEEVIL (Brachyrhinus rugosostriatus Goeze.)

Oregon. D. C. Mote (June 29): A heavy infestation was reported in the raspberry patches in Linn County. The beetles are now present in great numbers.

RASPBERRY SAWFLY (Monophadnoides rubi Harr.)

Montana. A. L. Strand (June 28): The raspberry sawfly is more destructive than usual.

GRAPE

GRAPE LEAFHOPPER (Erythroneura comes Say)

New York. N. Y. State Coll. Agr. News Letter (July): Early in the month grape leafhoppers were appearing in large numbers and promising trouble later in the season. (Abstract J.A.H.)

P. J. Parrott (July 24): The grape leafhopper is from moderately abundant to very abundant.

Pennsylvania. J. O. Pepper (July 23): The grape leafhopper is abundant on grapes in central Pennsylvania.

Indiana. J. J. Davis (July 28): The grape leafhopper was reported as very abundant and destructive to grapes at Connersville and Clinton during the first half of July.

Minnesota. A. G. Ruggles (July 26): The grape leafhopper is doing much damage around St. Paul and Minneapolis.

Nebraska. M. H. Swenk (June 20 to July 15): Residents of Omaha and Lincoln found the grape leafhopper doing considerable damage to their ornamental

woodbine vines during the first and second weeks in July.

Kansas. H. R. Bryson (July 25): Grape leafhoppers have been causing considerable injury to grapes in Doniphan County and in a number of other localities.

A LEAFHOPPER (Cicadella circellata Bak.)

California. H. J. Ryan (July 24): A heavy infestation of the blue sharpshooter (C. circellata) was reported on grapes at Rosemead.

ENGLISH WALNUT

WALNUT APHID (Chromaphis juglandicola Kalt.)

California. H. J. Ryan (July 24): The walnut aphid was found in June in sufficient numbers to warrant control measures on English walnuts in Los Angeles County.

PECAN

AN APHID (Melanocallis caryaefoliae Davis)

Georgia. T. L. Bissell (July 21): Of 200 leaflets collected at Experiment, 61 percent were injured, 7 percent of the leaf surface being injured. At Milner about 20 percent of the leaf surface was injured, but there was no defoliation. Few live aphids at either place.

OBSCURE SCALE (Chrysomphalus obscurus Comst.)

California. California St. Dept. Agr. (June 30): A new infestation was found in June on pecans at Flynn Springs, San Diego County, and small infestation at Rancho Santa Fe in a few back-yard plantings, all traceable to the former infestation. The infestation covers several acres and is heavy. It has spread to adjoining live oak trees. The State is making a complete survey, with eradication as the objective. It is believed that the scale was brought into California on pecan trees in 1919.

A SAWFLY (Periclista hickoriae Rohw.)

Mississippi. M. M. High (June 10): This pest was first observed along the Mississippi coast in April 1931, where it was attacking pecan, but the injury to pecan leaves this year is more widely distributed than before. Every orchard observed had leaves riddled with holes by the larvae.

CITRUS

GREEN CITRUS APHID (Aphis spiraecola Patch)

Florida. J. R. Watson (July 23): More abundant in Alachua County than ever before in July; scarce in Lake and Polk Counties.

Louisiana. H. L. Dozier (July 19): A. spiraecola is abundant, curling growing shoots of citrus in widely separated localities.

Puerto Rico. G. N. Wolcott (June 29): Small infestations of the green aphid of citrus have been noted for a year or more, but this spring serious infestations have been more common and appear to be increasing in intensity and extent.

ORANGE TORTRIX (Tortrix citrana Fern.)

California. H. J. Quayle (July 5): There is a heavy infestation at Corona, Riverside County. For the past 2 or 3 weeks small worms have been making slight scars under and in the vicinity of the button. Mr. McGregor is of the opinion that this work is chiefly that of Platynota stultana Walsm., but Mr. Basinger thinks that the infestations consist chiefly of the tortrix. If such infestation continues at Corona and the worms bore into the fruit, it will become a matter of considerable importance, even in that territory. I am not anticipating, however, that there is going to be very much boring into the fruit; if it does occur it will be the first time to my knowledge that there has been any such work to any serious degree as far from the coast as Corona. We have these heavy infestations every 5 to 7 years, more or less. The damage will range from a few percent to about 25 to 30 percent of the crop.

AVOCADO

A SCARABAEID (Serica fimbriata Lec.)

California. H. J. Ryan (July 24): Adults attacking a grove of young avocados in the southern part of Los Angeles County caused enough injury to justify control measures.

TRUCK - CROP INSECTS

BLISTER BEETLES (Meloidae)

Connecticut. M. P. Zappe (July 23): Blister beetles (Epicauta cinerea marginata Fab.) are very abundant and are causing considerable injury in New Haven County to beets, eggplant, and other vegetables.

Kentucky. W. A. Price (July 25): Three species of blister beetles, the ash gray (Macrobasis unicolor Kby.), the immaculate (M. immaculata Say), and the striped (E. vittata Fab.), are common throughout the State, feeding on truck crops.

Mississippi. J. M. Langston (July 23): A grower at Grenada, Grenada County, sent specimens of E. lemniscata Fab. to this office on July 2, with a report that they were causing considerable injury to tomatoes.

M. M. High (June 25): The three-lined blister beetle (E. lemniscata) was observed injuring potato and beets at Guntown and Tupelo.

South Dakota. H. C. Severin (July 16): Blister beetles have been severely damaging alfalfa, sweetclover, potato, caragana hedges, beans, beets, and ash and cottonwood trees. The species concerned numbered about a dozen.

WESTERN SPOTTED CURCUMBER BEETLE (Diabrotica soror Lec.)

Oregon. D. C. Mote and assistants (June 29): The western 12-spotted cucumber beetle is much more numerous near Corvallis than it was last year.

California. E. O. Essig (July 19): Adults were abundant and destructive to ornamental and garden plants in San Francisco Bay district in June.

H. J. Ryan (July 24): Considerable damage to beans in the southern part of Los Angeles County was caused by the western 12-spotted cucumber beetle and the western striped cucumber beetle (D. trivittata Mann.).

GRAPE COLASPIS (Colaspis brunnea Fab.)

New York. C. R. Crosby (July 5): The grape colaspis is causing quite a bit of damage to string beans at Mount Morris; also found in field beans at Burdett.

Alabama. J. M. Robinson (July 21): The grape colaspis is very abundant on cotton squares at Huntsville and Troy.

Tennessee. G. M. Bentley (July 21): The grape colaspis was damaging cotton bolls at Ripley on July 11; grape at Brighton on July 11; and grape and sweetpotato at Knoxville on July 13 and 17.

Mississippi. J. M. Langston (July 23): Specimens were received from Sunflower County on July 6, with a report that they were injuring cotton and cornsilks. Correspondents in Yazoo County recently sent in specimens stating that cotton was being injured by them.

FALSE CHINCH BUG (Nysius ericae Schill.)

Maryland. E. N. Cory (July 23): False chinch bugs are attacking dahlias in Allegany County.

Indiana. J. J. Davis (July 28): The false chinch bug was reported as abundant in cornfields in several localities but no injury was observed. At Winamac it was reported injuring potatoes on July 5.

Michigan. R. Hutson (July 16): The false chinch bug is very prevalent on raspberries all over the lower part of the Lower Peninsula. It has also injured potatoes and alfalfa.

Minnesota. A. G. Ruggles (July 28): The false chinch bug has been reported from Brainerd, Crow Wing County.

South Dakota. H. C. Severin (July 16): The false chinch bug is very abundant and is attacking all garden truck, raspberries, and blackberries in the Black Hills district.

Nebraska. M. H. Swenk (June 20 to July 15): The false chinch bug was reported as damaging garden truck, especially radishes, turnips, and, to a lesser extent, potatoes, in western Nebraska from Redwillow to Cherry Counties.

Utah. G. F. Knowlton (July 17): False chinch bugs are extremely abundant. Reports of damage to truck and garden crops have been received from a number of localities.

Nevada. G. G. Schweis (July 20): False chinch bugs have been giving some trouble by invading residences in the vicinity of Reno.

POTATO AND TOMATO

COLORADO POTATO BEETLE (Leptinotarsa decemlineata Say)

Minnesota. A. G. Ruggles (July 28): The Colorado potato beetle is moderately abundant.

North Dakota. J. A. Munro (July 18): The Colorado potato beetle is very abundant at Fargo.

South Dakota. H. C. Severin (July 16): For several years the Colorado potato beetle has been negligible, but is now becoming more abundant and is numerous enough to cause damage.

Nebraska. M. H. Swenk (July 15): Complaints of damage to potatoes continued to be received up to the middle of July.

Wyoming. C. L. Corkins (July 26): Colorado potato beetle very abundant; worst in years.

POTATO FLEA BEETLE (Epitrix cucumeris Harr.)

Connecticut. N. Turner (June 21): The potato flea beetle is more abundant than last month and is causing much damage to late potatoes in the Connecticut Valley.

New York. N. Y. State Coll. Agr. News Letter (July): The potato flea beetle is reported as generally abundant throughout the State, but on the whole not so abundant as in years of outbreaks.

Utah. G. F. Knowlton (July 7): Flea beetles are damaging potatoes at Riverton.

TOMATO PIN WORM (Gnorimoschema lycopersicella Busck)

Mississippi. M. M. High (June): This new tomato pest was found at Gulfport in greenhouses on May 7. When first found the larvae had done serious injury to tomatoes of transplantable size by practically defoliating about 90 percent of the plants. Later it was found in fields nearby where serious injury was done to fruit, leaves, and branches of tomato plants. This is the first record of this species in Mississippi. The grower reports a loss of two-thirds of his hothouse-grown tomatoes last winter from this pest. The field-grown tomatoes ripening in June were practically a total loss.

POTATO TUBER WORM (Gnorimoschema operculella Zell.)

Utah. G. F. Knowlton (July 17): Larvae are mining the leaves and stems of volunteer potatoes at Enterprise.

POTATO LEAFHOPPER (Empoasca fabae Harr.)

Massachusetts. A. I. Bourne (July 25): The potato leafhopper is very abundant except in the well-sprayed fields.

New York. N. Y. State Coll. Agr. News Letter (July): Potato leafhoppers were scarce in the western part of the State, but in the eastern part they were more numerous and considerable hopperburn was observed. (Abstract J.A.H.)

Ohio. N. F. Howard (July): The potato leafhopper is less abundant in central Ohio than at any time during the past 10 years. This is interesting in view of the rather light infestation in Florida late in 1933 and early in 1934, and tends to corroborate the migration theory.

Tennessee. G. M. Bentley (July 21): The potato leafhopper is unusually abundant on the Cumberland Plateau. A 30-percent loss in yield was suffered by those who did not spray.

South Dakota. H. C. Severin (July 16): The damage from the potato leafhopper has been severe during an extremely dry period.

POTATO APHID (Illinoia solanifolii Ashm.)

Massachusetts. A. I. Bourne (July 25): Potato aphids moderate to very abundant in the Connecticut Valley, especially in the last 3 weeks.

Connecticut. N. Turner (July 23): More abundant than usual in the Connecticut Valley, but thus far natural enemies are preventing an outbreak.

New York. N. Y. State Coll. Agr. News Letter (July): Potato aphids are very numerous on Long Island and in the southern counties of the Hudson River Valley. (Abstract J.A.H.)

SOUTHERN GREEN STINK BUG (Nezara viridula L.)

Mississippi. M. M. High (July 1): The southern green plant bug has caused serious damage to tomatoes along the Mississippi coast and injury was observed as far north as Lee County. It was also observed attacking peppers and potatoes.

TARNISHED PLANT BUG (Lygus pratensis L.)

Maine. H. B. Peirson (July 7): Tarnished plant bug observed at Augusta. Very common and stinging potato buds.

Maryland. E. N. Cory (July 23): Tarnished plant bugs attacking potatoes on the Eastern Shore and canning beans at Westminster. The dusky plant bug (Adelphocorus rapidus Say) is also attacking canning beans at Westminster, and both pests have caused extensive damage to canning beans in Carroll County.

Indiana. J. J. Davis (July 28): The tarnished plant bug was observed damaging potatoes in northern Indiana by G. E. Gould.

TOMATO PSYLLID (Paratrioza cockerelli Sulc.)

Wyoming. C. L. Corkins (July 26): Very serious outbreak of psyllid yellows on potatoes, extending from Lander through the Big Horn Basin to Powell. Extensive control measures are now under way.

A JERUSALEM CRICKET (Stenopelmatus longispina Brun.)

California. H. J. Ryan (July 24): A Jerusalem cricket, S. longispina, was unusually abundant on potatoes planted in fallow ground near Huntington Park, in Los Angeles County.

BEANS

MEXICAN BEAN BEETLE (Epilachna corrupta Muls.)

New Hampshire. L. C. Glover (July 24): The Mexican bean beetle is moderately abundant.

Vermont. H. L. Bailey (July 27): The Mexican bean beetle is very abundant in Windham and Bennington Counties.

Massachusetts. A. I. Bourne (July 25): The Mexican bean beetle very abundant locally. In many cases, it has been practically absent, even from large plantings, but, on the other hand, home gardens and commercial plantings have suffered severely. The beetles apparently emerged in numbers rather later than usual.

Connecticut. W. E. Britton (July 24): The Mexican bean beetle is moderately abundant.

New York. N. Y. State Coll. Agr. News Letter (July): Early in the month beetles were hatching in large numbers on Long Island. They were also about as numerous as last year in the western part of the State. (Abstract J.A.H.)

New Jersey. T. J. Headlee (July 24): The Mexican bean beetle is moderately abundant.

Pennsylvania. L. L. Guyton (July 23): Moderately abundant throughout the southeastern part of the State.

Ohio. T. H. Parks (July): Injury has been greater than usual and rather evenly distributed over the State. Serious injury, even in northeastern counties during June.

Indiana. J. J. Davis (July 28): The Mexican bean beetle has been reported as abundant and destructive in many localities in the southern half of the State. The potato beetle killer (Perillus bioculatus Fab.) has been reported frequently as attacking the larvae.

Nebraska. M. H. Swenk (July 15): On June 23 the Mexican bean beetle was reported doing damage to garden beans around Oshkosh, Garden County, this being the first record of its occurrence in that county.

PEAS

PEA APHID (Illinoia pisi Kalt.)

New York. N. Y. State Coll. Agr. News Letter (July): The pea aphid was very abundant throughout the State. In some areas as high as 95 percent of the late peas were plowed under. In the lake region this insect is more serious than it has been in any past year. (Abstract J.A.H.)

Idaho. C. Wakeland (July 24): There is a rather serious outbreak in the pea fields of northern Idaho. It is especially severe on the late varieties, and yields are being definitely reduced. This unusual infestation is doubtless due to the preceding mild fall and winter, which allowed volunteer peas to live in the field throughout the winter and early spring, and aphids probably reproduced on them during the period when they are usually dormant in this area. Parasites have been of minor importance in control and have not bred up as they have done frequently in former years when the aphid has been abundant.

CABBAGE

HARLEQUIN BUG (Murgantia histrionica Hahn)

Virginia. H. G. Walker (July 26): The harlequin bug is only moderately abundant at Norfolk. We have had very few requests for information, as compared with last year.

Florida. F. S. Chamberlin (June 20 to July 15): The harlequin cabbage bug is very abundant at this time in Gadsden County, attacking cabbage and collards.

Ohio. N. F. Howard (July): The harlequin bug is present in southern Ohio but is not very injurious. A number apparently survived the rather severe winter.

B. J. Landis (July 23): An adult was taken from broccoli at the State University. This is the first record this year for Columbus.

Indiana. J. J. Davis (July 28): The harlequin bug was reported as destructive to cabbage and cauliflower from July 2 to 12 in the southern part of the State.

Tennessee. G. M. Bentley (July 21): The harlequin bug is very abundant throughout the State, except in 8 counties in the extreme western part.

CABBAGE APHID (Brevicoryne brassicae L.)

Ohio. T. H. Parks (July 10): The cabbage aphid has caused serious injury to some commercial cabbage plantings. Damage is most serious on cabbage grown from plants produced in the South.

Indiana. J. J. Davis (July 28): The cabbage aphid was reported as heavily infesting cabbage at Howe and Indianapolis the last of June.

Nebraska. M. H. Swenk (July 15): Cabbages were reported as being heavily attacked in Sherman County during the first week in July.

Montana. A. L. Strand (June 28): The cabbage aphid is abundant.

Utah. G. F. Knowlton (June 9): Cabbage aphids are damaging cabbage plants at Cedar City and at Beryl.

SQUASH

SQUASH BUG (Anasa tristis DeG.)

Ohio. N. F. Howard (July 18): Squash bug eggs are extremely numerous on early squash and are hatching on this date at Columbus. Some vines have been wilted by nymphs.

Indiana. J. J. Davis (July 28): The squash bug was reported as abundant at Andrews, Howe, and Berne the last of June. At the latter place it was injuring pumpkin.

South Dakota. H. C. Severin (July 16): The squash bug is destructive to squash, melons, and cucumbers at Parker.

Nebraska. M. H. Swenk (June 20 to July 15): The squash bug was exceedingly injurious to squashes and pumpkins and less so to cucumbers and melons over a large section of the State from June 29 to July 5, the most complaints coming from northern Nebraska, from Knox County west to Cherry and Sheridan Counties.

Kansas. H. R. Bryson (July 25): Squash bugs are abundant at Wichita, Manhattan, and Oxford.

Utah. G. F. Knowlton (July 9): Squash bugs are abundant at Cedar City, discouraging the growing of squash there, and have killed most of the squash plants on some farms at Providence.

Oregon. D. C. Mote and assistants (June 29): The squash bug is present in serious numbers in some plantings near Corvallis.

CELERY

CARROT WEEVIL (Listronotus latiusculus Boh.)

Michigan. R. Hutson (July 16): The celery stalk borer has been causing considerable damage to celery in the vicinity of Portage and Kalamazoo. Survey indicates that this pest is common throughout the celery-growing region around Kalamazoo; that the injury occurs all over the field; and that this pest is capable of doing serious injury to celery.

EGGPLANT

A TORTOISE BEETLE (Gratiana pallidula Boh.)

Mississippi. M. M. High (July): The eggplant tortoise beetle did considerable

injury to eggplant about Gulfport and Long Beach. From 2 to 7 to the plant were found and many plants had leaves riddled with holes.

MINT

MINT FLEA BEETLE (Longitarsus waterhousei Kutsch.)

Indiana. J. J. Davis (July 28): The mint flea beetle is damaging many mint fields in northern Indiana, where control has not been practiced.

Michigan. R. Hutson (July 17): The mint flea beetle is causing considerable damage to mint in the vicinities of Baroda, Niles, Dowagiac, and Saint Johns.

STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus L.)

Michigan. R. Hutson (July 16): B. ovatus has been causing considerable damage to mint at Ovid. One field of 3 acres was totally ruined and several other fields are infested.

STRAWBERRY

STRAWBERRY CROWN MOTH (Aegeria rutilans Hy. Edw.)

Oregon. D. C. Mote and assistants (June 29): The peak of emergence was reached in the last week of June. The moths began to appear the first week of Jun.

BEETS

BEET LEAFHOPPER (Eutettix tenellus Bak.)

Utah. G. F. Knowlton (June 27): Beet leafhoppers are present in damaging numbers in most parts of Utah, with sugar beets and tomatoes being seriously affected in most areas in which they are grown. Curly-top damage is least severe in Cache Valley. Sugar beets have been plowed up in some fields in more seriously infested areas. (July 20): Leafhoppers and curly-top are becoming increasingly destructive to the sugar beet crop. More beets are being abandoned as the season progresses.

C. J. Sorenson (July 27): The beet leafhopper is very abundant in Utah Salt Lake, Davis, Boxelder, and Weber Counties.

SPINACH LEAF MINER (Pegomya hyoscyami Panz.)

Montana. A. L. Strand (June 28): The beet leaf miner has caused commercial damage to beets, Swiss chard, and spinach this year for the first time.

F O R E S T A N D S H A D E - T R E E I N S E C T S

BAGWORM (Thyridopteryx ephemeraeformis Haw.)

- Maryland. E. N. Cory (July 21): Many reports of attack on evergreens coming in from all parts of the State.
- Virginia. H. G. Walker (July 26): Bagworms are rather abundant at Norfolk.
- North Carolina. R. W. Leiby (July 5): The bagworm is more abundant on arborvitae shrubs than usual. It is generally widespread in the State.
- South Carolina. F. Sherman (July 26): The evergreen bagworm is more numerous than usual throughout the State.
- Georgia. T. L. Bissell (July 23): One report received from Cedartown on July 17 and two from Griffin on July 21 and 23, of injury on spruce, arborvitae, and cedars.
- Ohio. E. W. Mendenhall (June 29): Young bagworms are very numerous on elm trees now and are feeding on the leaves at Columbus. (July 17): It is very injurious on the arborvitae and on many of the deciduous trees in Springfield.
- Indiana. J. J. Davis (July 28): Bagworms are reported as being destructive to arborvitae at Anderson and Lafayette on July 18.
- Alabama. J. M. Robinson (July 21): The bagworm is very abundant on arborvitae at Fort Payne and Hackleburg.
- Texas. E. W. Laake (July 24): Bagworms are very abundant in Dallas and vicinity.

F O R E S T T E N T C A T E R P I L L A R (Malacosoma disstria Hbn.)

- Maine. H. E. Peirson (June 26): Very heavy stripping over an area of about 75 acres in Newcastle. Many birch, oak, and poplar are 100 percent defoliated. Heavy outbreaks also at Harpswell, from Enfield to Springfield, at Waltham, and 8 miles north of Millinocket, besides those areas mentioned in previous reports. Six to eight females were seen flying on the plateau of Mt. Katahdin during the heat of the day on July 9, which seems unusual, as poplar drops out on the lower slopes.
- J. V. Schaffner, Jr. (July 20): We have reports that many acres of hardwoods between Bangor and Millinocket have been defoliated.
- New Hampshire. L. C. Glover (July 14): An infestation of 250 acres has been reported in the town of Eaton, where the defoliation was nearly 100 percent. There was also severe feeding in several places at Conway and Hancock.

SATIN MOTH (Stilpnotia salicis L.)

New England. J. V. Schaffner, Jr. (July 20): Reports received show that infestations are generally light. In Harpswell, Maine, a few willow trees were completely defoliated and at South Boston, Mass., some poplar trees were nearly defoliated.

Connecticut. W. E. Britton (July 23): A full-grown larva was received from West Hartford on June 27, and two adults from West Haven on July 9. They were attacking poplar.

Washington. D. J. Caffrey (July 5): During the period June 12-14, severe defoliation of Lombardy poplars and cottonwood were observed at Sumner, Puyallup, and Tacoma.

FALL WEBWORM (Hyphantria cunea Drury)

Maryland. E. N. Cory (July 21): The fall webworm is attacking a wide variety of trees generally.

Georgia. O. I. Snapp (July 1): The fall webworm infestation south of Thomaston is the heaviest I have ever seen. On July 1 many small trees in woodlands were completely defoliated for miles.

T. L. Bissell (July 9): Few nests observed on pecan at Experiment and Milner.

SUMACH BEETLE (Blepharida rhois Forst.)

Florida. J. R. Watson (July 23): The sumach beetle has been damaging Brazilian peppers (Schinus terebinthifolius).

ASH

A BARK BEETLE (Leperisinus aculeatus Say)

Nebraska. M. H. Swenk (July 17): A correspondent from Saline County reported that his ash trees were being killed by the ash tree bark-beetle (Hylesinus aculeatus) during the first week in July.

A GALL MITE (Eriophyes fraxiniflora Felt)

Nebraska. M. H. Swenk (June 20 to July 15): Reports of severe infestations on ash trees were received from Antelope and Sarpy Counties on June 26 and July 2, respectively.

BIRCH

BRONZE BIRCH BORER (Agrilus anxius Gory)

New York. E. P. Felt (July 24): The bronze birch borer is somewhat prevalent in the Westbury, L.I., area, killing birches here and there.

Ohio. E. W. Mendenhall (July 2): The bronze birch borer is very injurious on the birch trees in Springfield and nearby.

Wisconsin. E. L. Chambers (July 30): The bronze birch borer is being reported as doing serious injury throughout the northern part of the State, being abundant in the plantings around parks and summer resorts, as well as in the heavier wooded areas.

CYPRESS

A GELECHIID (Recurvaria apicitripunctella Clem.)

Pennsylvania. E. P. Felt (July 24): A bald cypress leaf feeder R. apicitripunctella was reported as abundant and injurious to this tree in the Philadelphia area.

ELM

ELM LEAF BEETLE (Galerucella xanthomelaena Schr.)

New England. J. V. Schaffner (July 20): There has been a marked decline in the intensity of infestation generally throughout New Hampshire, eastern Massachusetts, and northern Rhode Island.

Connecticut. W. E. Britton (July 23): Probably less destructive than last year but has defoliated unsprayed trees in some localities.

New York. E. P. Felt (July 24): The elm leaf beetle has been locally abundant and very destructive; trees often completely defoliated in southern New York.

N.Y. State Coll. Agr. News Letter (July 9): Larvae have defoliated several large elms in Milton. They are now pupating.

Ohio. E. W. Mendenhall (July 2): Very injurious in Springfield and West Jefferson and seems to be spreading over the State.

B. J. Landis (July 23): The elm leaf beetle is injurious on some trees at Oxford and Piqua.

Kentucky. W. A. Price (July 25): Much damage to elms in the bluegrass area.

A SCOLYTID (Hylurgopinus rufipes Eich.)

Michigan. E. I. McDaniel (July 11): On June 25 several large elms 40 or 50 years old, growing on the streets of Lansing, were removed under suspicion of being infected with Dutch elm disease. A bark beetle was found to be present in great numbers and in some instances the entire trunk of the tree was engraved from the base to the crown for some 10 or 12 feet. Specimens were sent to M. W. Blackman for determination and he reports that they are H. rufipes. The death of the trees has taken place only

on streets paved during the last 3 or 4 years. This, together with continued dry weather, has undoubtedly weakened the trees and made them susceptible to attack by bark beetles.

EUROPEAN ELM SCALE (Gossyparia spuria Mod.)

Maryland. E. N. Cory (July 23): General infestation over the State on elms.

Ohio. N. F. Howard (July): European elm scale, presumably G. spuria, is abundant and injurious to elms in Columbus and abundant in some woodlots near the city.

Indiana. J. J. Davis (July 28): The European elm scale was reported as being abundant and destructive to elms in Allen County during the latter part of June.

Wisconsin. E. L. Chambers (July 30): The European elm scale is being reported by our nursery inspectors in several sections of the State heretofore uninfested, and it is apparently appearing in greater numbers.

Idaho. C. Wakeland (July 9): European elm scale has become established and is causing serious injury to American elms in the vicinity of Moscow. This is the first year that it has been reported from this locality.

LOCUST

LOCUST LEAF MINER (Chalepus dorsalis Thunb.)

Virginia. F. C. Meier (July 16): The locust leaf miner was abundant throughout the area between Roanoke and Charlottesville, locust trees on both sides of the mountains being attacked. Serious leaf injury is being caused. The affected foliage serves to conspicuously mark the distribution of locust throughout the area. (Det. by S. A. Rohwer)

MAPLE

GREEN FRUIT WORM (Graptolitha antennata Walk.)

Vermont. H. L. Bailey (July 27): The green maple worm and another species, possibly Septis grotei B. & McD., are very abundant on soft maple and ash, and to some extent on oak in Milton near the mouth of the Lamoille River. Defoliation in swamp lands is nearly complete.

NORWAY MAPLE APHID (Periphyllus lyropictus Kess.)

Kentucky. W. A. Price (July 25): Specimens received on maple foliage from Berea, Shelbyville, Carlisle, and Lexington.

WOOLLY ALDER APHID (Prociphilus tessellatus Fitch)

New Hampshire. L. C. Glover (July 14): Reported several times from various parts of the State and is abundant on cutleaf maple in Antrim and Manchester.

Massachusetts. A. I. Bourne (July 25): We have had several complaints of unusual abundance of a species of aphids on maple. (Det. by E. Patch)

Connecticut. W. E. Britton (July 23): More common than usual on silver maple.

E. P. Felt (July 24): The alder blight aphid was reported as very abundant and curling the leaves of a soft maple in the Danbury area.

New York. C. R. Crosby (July 3): Cutleaf maple leaves badly infested were received from Schenectady.

R. E. Horsey (July): Considerable infestation found on branches of an alder at Rochester. Not as common now as in some years.

Maryland. E. N. Cory (July 21): General on soft maples.

Ohio. T. H. Perks (July 3): Infesting soft maple trees in parts of Ohio. I have received it from three counties. This is the first year it has been brought to my attention. I suppose it is the woolly maple leaf aphid (Pemphigus acerifolii Riley).

MOUNTAIN-ASH

A SAWFLY (Pristiphora banksi Marl.)

Maine. H. B. Peirson (June 30): The mountain-ash sawfly hatched at Boothbay on June 24. Young larvae are numerous. On Monhegan Island all mountain-ash trees are being stripped.

OAK

OAK TWIG PRUNER (Hypermerellus villosus Fab.)

Maine. H. B. Peirson (July): Reports of infestation are general and common over central and southern Maine.

New Hampshire. L. C. Glover (July 24): The oak twig borer has been reported several times as doing damage to oak.

Massachusetts. A. I. Bourne (July 25): It is very generally abundant and its work has been made rather more conspicuous during the last 2 or 3 weeks, as we have had practically no rainfall and very light wind and many of the severed twigs have failed to drop to the ground. The larvae have nevertheless died and the foliage has turned color.

Connecticut. W. E. Britton (July 23): Unusually abundant this season. Many inquiries received regarding it.

Indiana. J. J. Davis (July 28): According to reports from June 21 to July 6, the twig pruner was very abundant in several localities in northeastern Indiana where it was cutting oak twigs.

Michigan. R. Hutson (July 16): The oak twig pruner is very evident all over the Lower Peninsula.

Wisconsin. E. L. Chambers (July 30): Many specimens of the oak twig pruner are being sent from the southeastern corner of the State to this office for identification.

Minnesota. A. G. Ruggles (July 28): Doing considerable damage to apple at White Bear, Ramsey County.

TWO-LINED CHESTNUT BORER (Agrilus bilineatus Web.)

Connecticut, New York, and Rhode Island. E. P. Felt (July 24): The two-lined chestnut borer is becoming increasingly abundant in the oaks in Rhode Island, especially about Newport, and also in southern Connecticut and southern New York, especially on the North Shore of Long Island. The indications are that many trees will succumb to this dangerous pest in the next few years.

CALIFORNIA OAK WORM (Phryganidia californica Pack.)

California. H. J. Ryan (July 24): The California oak moth is still causing concern to owners of oak trees in Los Angeles County. Adult moths were reported in large numbers, particularly in the western part of the county. This may mean a heavy fall infestation.

A SCALE INSECT (Chionaspis quercus Comst.)

Florida. E. W. Berger and G. B. Merrill (July 24): The oak chionaspis is very abundant at Carrabelle. The infestation is severe on one or several trees.

PINE

A SCARABAEID (Pachystethus lucicola Fab.)

Michigan. E. I. McDaniel (June 29): Recently we have received specimens of Anomala lucicola feeding on Austrian pine at Free Soil. From time to time we have had more or less trouble with this species in the grape belt, where in some years it caused quite a little damage. This is the first record we have had of its feeding on conifers.

WHITE PINE WEEVIL (Pissodes strobi Peck)

Maine. J. V. Schaffner (July 20): In driving through parts of Cumberland and York Counties on July 16, I noticed that many terminals of white pine were drooping and drying up because of infestation.

A PINE WEEVIL (Pissodes approximatus Hopk.)

Connecticut. E. P. Felt (July 24): A white pine weevil, provisionally identified as P. approximatus, has killed a number of small pines at

North Stamford, the work being confined to the very base of the trunk and mostly a little below the surface of the ground.

ABBOT'S SAWFLY (Diprion abbotii Leach)

Minnesota. A. G. Ruggles (July 28): Reported on white pine at Scandia.

PINE NEEDLE SCALE (Chionaspis pinifoliae Fitch)

Minnesota. A. G. Ruggles (July 28): Reported from Deerwood as quite abundant on spruce.

South Dakota. H. C. Severin (July 16): The pine needle scale is moderately abundant in the Black Hills on Bull pine.

POPLAR

POPLAR BORER (Saperda calcarata Say)

North Dakota. J. A. Munro (July 18): The poplar borer is causing serious injury to poplar trees at Williston and Pekin.

SPRUCE

A EUCOSMID (Enarmonia ratzeburgiana Sax.)

Maine. H. B. Peirson (July 1): Considerable injury to tips of white spruce at Bar Harbor. Moths emerging in large numbers.

SPRUCE GALL APHID (Chermes abietis L.)

Maine. H. B. Peirson (July 12): There is considerable injury from this insect in Newagen. On Monhegan Island, where there have been outbreaks in the past, none could be found this year, on July 19 after thorough searching.

SPRUCE MITE (Paratetranychus uninguis Jac.)

Connecticut. W. E. Britton (July 23): This mite is apparently becoming more abundant. Specimens received on arborvitae from Bloomfield, Chester, Meriden, Windsor, and Wethersfield; on hemlock from Middle Haddam; on spruce from Hartford, Bridgeport, Ridgefield, and Woodbridge.

South Dakota. H. C. Severin (July 16): During the dry period of May and early June the spruce mite became exceedingly abundant on spruce and did an immense amount of damage.

INSECTS AFFECTING GREENHOUSE
AND ORNAMENTAL PLANTS

STRIPED FLEA BEETLE (Phyllotreta vittata Fab.)

Maryland. P. Knight (July): The heads of sweet alyssum are being completely eaten. When the alyssum is sprayed the beetles begin to attack the nasturtiums, eating holes in the leaves. The leaves of the alyssum are also peppered with small holes. We have no records of this in previous seasons

ARBORVITAE

A SOFT SCALE (Lecanium fletcheri Ckll.)

Connecticut. W. E. Britton (July 23): Specimens received from Chester, Madison, Pomfret Centre, and Southport.

Indiana. J. J. Davis (July 28): A lecanium scale, probably L. fletcheri, was abundant on arborvitae at Pendleton.

BARBERRY

A PYRALID. (Omphalocera dentosa Grote)

Maryland. E. N. Cory (July 23): Attacking barberry in Washington County.

COLUMBINE

COLUMBINE BORER (Papaipema purpurascia G. & R.)

Maine. H. B. Peirson (July 14): Caterpillars are numerous on columbine plants at Rumford.

New Hampshire. L. C. Glover (July 24): Injury has been reported from various parts of the State.

CRAPEMYRTLE

CRAPEMYRTLE APHID (Myzocallis kahawaluokalani Kirk.)

Louisiana. H. L. Dozier (July 19): The crapemyrtle plant louse is becoming abundant on crapemyrtle in New Orleans.

DAHLIA

A TORTRICID (Sparganothis flavedana Clem.)

Louisiana. H. L. Dozier (July 17): At present and during the greater part of June a small species of tortricid has been attacking the young growing shoots and buds of dahlias, webbing together and eating in such a manner as to destroy the bud and tip. Although not a serious matter, it is extremely annoying. This insect was present last season in widely scattered

fields, particularly during the month of June.

GLADIOLUS

GLADIOLUS THRIPS (Taeniothrips gladioli M. & S.)

- Maryland. E. N. Cory (July 23): Doing considerable injury wherever gladioli are grown.
- Wisconsin. E. L. Chambers (July 30): The gladiolus thrips is not so abundant this year as last, probably owing to the fact that most of the growers are now treating their bulbs during winter storage and are following satisfactory control programs during the growing season.
- North Dakota. J. A. Munro (July 18): Gladiolus thrips are moderately abundant at Fargo and Grand Forks.
- Utah. G. F. Knowlton (June 27): Thrips are seriously damaging gladioli at Logan and Provo.
- California. E. O. Essig (July 19): Gladiolus thrips are widely distributed in San Francisco Bay district, but are only nominally destructive so far.
- H. H. Keifer (July 21): This is the first year that the gladiolus thrips has appeared in Sacramento.

HYDRANGEA

FOUR-LINED PLANT BUG (Poecilocapsus lineatus Fab.)

- Maine. H. B. Peirson (July 23): The four-lined plant bug is abundant in Augusta.

IRIS

IRIS BORER (Macronoctua onusta Grote)

- New Hampshire. L. C. Glover (July 24): This borer is reported as causing injury to cultivated iris in the University gardens at Durham.
- Maryland. E. N. Cory (July 23): More numerous in College Park than for several years.

LILAC

LILAC LEAF MINER (Gracilaria syringella Fab.)

- Michigan. E. I. McDaniel (July 17): Today I received specimens of the lilac leaf miner from Petoskey, where it is said to be doing considerable damage to a lilac plantation. This insect has not been troublesome in Michigan in the past.

LILY

BULB MITE (Rhizoglyphus hyacinthi Bdv.)

Nebraska. M. H. Swenk (June 20 to July 15): A grower of Madonna lily bulbs in Clay County finds that the bulb mite has practically destroyed her crop.

RHODODENDRON

RHODODENDRON LACEBUG (Stephanitis rhododendri Horv.)

New York. R. E. Horsey (July): The rhododendron lacebug is reported as numerous on rhododendrons at Le Roy.

I N S E C T S A T T A C K I N G M A N A N D

D O M E S T I C A N I M A L S

MAN

BEDBUG (Cimex lectularius L.)

Indiana. J. J. Davis (July 28): Numerous reports of infestations have been received from the northern half of the State during the past 2 weeks.

South Dakota. H. C. Severin (June 16): We have received more complaints during the past year and spring than usual. Frequently chicken coops and houses were badly infested.

Utah. G. F. Knowlton (July 17): Reports of annoyance have been received from Santaquin, Promontory, Salt Lake City, and Magna.

FLEAS (Ctenocephalides spp.)

North Carolina. R. W. Leiby (July 5): Many towns and cities in the State are suffering from an epidemic of cat and dog fleas. The abundance is attributed to damp basements and damp ground beneath houses resulting from wet weather.

Nebraska. M. H. Swenk (July 15): Complaints of infestations of houses with the dog flea (C. canis Curt.) were received quite commonly during the period from June 25 to July 11. One case of infestation with the cat flea (C. felis Bouche) came from Wayne County.

TREE HOLE MOSQUITO (Aedes varipalpus Coq.)

Oregon. H. H. Stage (July 6): The tree hole mosquito was a serious annoyance at Lacombe. This is the first time we have found this mosquito in numbers sufficient to become a pest in Oregon.

BLACK WIDOW SPIDER (Latrodectes mactans Fab.)

Georgia. O. I. Snapp (July 3): A female black widow spider and an egg mass were found today in the weather instrument house on the laboratory grounds at Fort Valley.

Nevada. G. G. Schweis (July 20): Newspaper articles have aroused much interest in the black widow spider situation. Several specimens sent in have been identified as this species and many have proved to belong to other species.

Arizona. C. D. Lebert (July 24): More reports than normally have been brought to our attention this season regarding black widows in and around Phoenix.

Oregon. D. C. Mote and assistants (June 29): The spider is apparently more numerous in localities east of the Cascades. We have also received specimens from Roseburg, Douglas County. This is the first authentic record of its occurrence west of the Cascades.

CATTLE

SCREW WORMS (Cochliomyia spp.)

Georgia. R. A. Roberts (July 19): This insect is occurring in all directions beyond the area infested last year. Reports from the western edge of the infested area in Georgia have stated that the screw worm was active and causing losses in Muscogee County, on the Georgia-Alabama State line. On July 18 a case of screw worms in a castration wound in a calf was discovered in Effingham County, Ga. This locality is about 25 miles north of Savannah and about 75 miles north of any previously recorded infestation. The screw worm has spread into all the coastal counties of Georgia. Several cases were recorded in Long County early in the year, most of them having followed castration. The present infestations are mostly on sheep and are due to tick bites on the ears.

F. C. Bishopp (August 3): It has been impossible to gather accurate information on the number of cases, but the total is several hundred and there is much anxiety over the situation.

Florida. J. R. Watson (July 23): The screw worm continues to increase in numbers and severity in northern Florida. Hundreds of cattle and hogs and some horses have been lost.

F. S. Chamberlin (July 18): A heavy infestation is reported in Gadsden County.

J. B. Hull (July): I reared specimens of Cochliomyia sp. from a cow in southern Okeechobee County. The county agent said that he had treated 25 cases since April 17.

F. C. Bishopp (August 3): Reports have been received by the Bureau that screw worm cases have occurred in Dade County, but the flies have not been reared. There are many cases in the northern part of the State and the farmers are much concerned over the situation. Reports show that the pest is attacking livestock farther south than it did last year.

STABLE FLY (Stomoxys calcitrans L.)

Florida. F. C. Bishopp (August 3): Reports from the northwestern part of Florida indicate that the stable fly, known locally as the "dog fly", is now present in seriously annoying numbers. Livestock are so harassed

as to greatly reduce their condition and the local FERA workers have inquired about the inauguration of control projects.

Iowa. R. W. Wells (July 28): Cattle and horses in central Iowa have suffered severely. Such attacks are especially serious in cases where livestock are already weakened for want of proper grazing. The pests have also been very abundant and annoying around city dwellings and around swimming pools, where the arms and legs of persons were exposed. The outbreak followed liberal rains during the first half of July.

W. G. Bruce (July 28): This pest is as abundant and annoying at Ames as I have ever seen it. I caught some 15,000 flies on two heifers in half a day in the cattle fly trap. This pest has also been annoying to golfers on the local courses.

Missouri. L. Haseman (July 23): Abundant on cattle.

Nebraska. M. H. Swenk (July 15): The biting stable fly has proved moderately severe this summer. The most numerous reports have come from Madison County, in the vicinity of Battle Creek and Tilden, and thence west to Ericson in Wheeler County, but the flies have been more or less troublesome over all of eastern Nebraska.

GULF COAST TICK (Amblyomma maculatum Koch)

Mississippi. J. M. Langston (July 23): On July 16 a correspondent in Perry County sent to this office specimens of the Gulf Coast tick, with a report that they were causing considerable trouble by infesting the ears of sheep, cattle, and hogs.

HORSE

HORSE FLIES (Tabanidae)

South Dakota. H. C. Severin (July 16): The horse fly (Silvius pollinosus Williston) is much more abundant than usual and is causing the cattle in the infested area considerable worry.

Utah. G. F. Knowlton (July 17): Horse flies are annoying livestock in scattered localities throughout the State.

H O U S E H O L D A N D S T O R E D - P R O D U C T

I N S E C T S

TERMITES (Reticulitermes spp.)

Ohio. M. F. Howard (July): A home gardener at Columbus brought in some cabbage roots which were tunnelled with termites, probably R. flavipes Kol. for identification.

Indiana. J. J. Davis (July 28): Termites damaged chrysanthemums and geranium in greenhouses at Logansport and La Fayette, respectively.

Mississippi. K. L. Cockerham (July): Reported as doing very serious injury to a store building and merchandise in Biloxi. Men's shirts and shoes were being damaged and the owner of the store brought a blue work shirt to the laboratory which had been entirely ruined. He stated that considerable of the merchandise had been attacked.

Kansas. H. R. Bryson (July 25): Termites are killing rhubarb plants at Burdett and infesting woodwork in the high school building at Junction City.

ARGENTINE ANT (Iridomyrmex humilis Mayr)

Louisiana. H. L. Dozier (July 19): The argentine ant is very abundant and is widely distributed over New Orleans.

Mississippi. M. R. Smith (July 20): A new infestation was found recently in Attala County by A. H. Simmons.

A FIRE ANT (Solenopsis geminata xyloni McC.)

Mississippi. M. R. Smith (July 20): Fire ants were the cause for more complaint from more sources than any other ants. Specimens were received from many localities. The ants have been reported as infesting homes, nesting in flower and vegetable gardens, as well as in lawns and yards, girdling the roots and stalks of eggplants, and gnawing holes in the pods of okra and the buds of althea.

THE DUTCH ELM DISEASE SITUATION AS OF JULY 25, 1934

The Dutch elm disease has been found in five States; namely, Connecticut, Maryland, Ohio, New Jersey, and New York. According to the latest report (July 25, 1934) in which the data are separated, 4,426 trees showing the Dutch elm disease have been found in the infected area as follows: New Jersey 3,405, New York 992, and Connecticut 29.

Scouting and eradication will be confined to the areas of known infection. The Federal funds will be used chiefly for scouting and locating the diseased trees in the States of New Jersey, New York, and Connecticut, to combat the disease where it is spreading from that area. The States concerned will use their funds chiefly for the proper destruction of the diseased trees.

For the present, the inspection work aimed at locating any unknown centers of infection will have to be cared for by the States concerned and by other agencies interested in the safety of the elms. The Department will maintain a Dutch elm disease laboratory at Morristown, N. J., where the suspicious material, either diseased elm bark and twigs or bark beetle specimens, sent in from various parts of the country, will be examined. It is hoped that the State agencies and others interested will cooperate to the fullest extent in scouting and in encouraging people throughout the elm-growing areas to send in suspicious material for examination.

The following instructions for the collection and forwarding of bark beetle specimens are given: Look for evidence of the typical engravings between the bark and the sapwood in dead and dying elms (in case of the European bark beetles, the egg galleries are generally parallel to the grain of the tree). Collect the mature beetles if found, and a complete engraving if possible. Kill the beetles in alcohol or formalin and place the material in a tight container (preferably strong cardboard, light wood, or metal) for mailing.

In all cases enclose or forward information giving the location where the samples were collected, together with as full a description as possible relative to the general conditions of the trees sampled and the extent of such conditions.

INSECT PEST SURVEY BULLETIN

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THE MORE IMPORTANT RECORDS FOR AUGUST 1934

Although grasshoppers continued troublesome during the greater part of August, control campaigns are practically closed in most of the Plains States.

The garden webworm appeared in large numbers about the middle of the month from Indiana westward to Missouri and Nebraska.

Sod webworms were very troublesome during the latter half of the month from Ohio westward to Missouri and Nebraska, in many instances being particularly troublesome on golf greens.

The white-lined sphinx appeared in outbreak numbers in parts of Iowa, being very destructive to soybeans.

Reports received from Iowa indicate that the chinch bug will probably be an even more serious pest in that State in 1935 than it has been this year. It is estimated that over 11 million dollars worth of grain was saved in that State this year by the control campaign. Second-brood bugs were observed about the middle of the month in Missouri, Nebraska, and Kansas.

The plum curculio will probably go into hibernation in larger numbers than usual in the Fort Valley peach section of Georgia.

The grape leafhopper is more abundant in the Niagara district of New York than it has been for several years.

The tobacco worm is causing serious damage to tomatoes in parts of Iowa, Nebraska, and Nevada.

Table-stock potatoes in the irrigated section of Wyoming have been reduced 5 percent by the tomato psyllid.

The Mexican bean beetle has been more abundant and more widely distributed than ever before in Maine. Similar reports of infestations have been received from the New England and Middle Atlantic States, and it is reported to be moderately abundant throughout its range.

Twenty-one additional townships in Washington, Penobscot, Hancock, and Caldo Counties in Maine, have been found infested by the beech scale.

Damage by screw worms is apparently on the increase in Florida and Mississippi.

GENERAL FEEDERS .

GRASSHOPPERS (Acrididae)

- Iowa. C. J. Drake (August 2): The three most important grasshoppers in Iowa are the lesser migratory locust (Melanoplus mexicanus Sauss.), the two-lined locust (M. bivittatus Say) and the differential locust (M. differentialis Thos.). Heretofore, the differential locust has been the most important; but this year it seems that the lesser migratory and two-lined locusts are responsible for most of the damage. In some localities the two-lined locust is extremely abundant. The infestation is very spotted.
- Missouri. L. Haseman (August 24): Except for Barry and Howell Counties in the Ozarks, we find none of the three economic species of grasshoppers at all abundant.
- Nebraska. M. H. Swenk (August 15): The grasshopper situation continued to be troublesome during the period July 15 to August 15, and, up to the middle of August, more than 2,000 tons of poisoned-bran bait had been distributed in 38 counties.
- Kansas. H. R. Bryson (August 25): Although grasshoppers can be found in their usual habitat wherever sufficient green vegetation is present, they are comparatively scarce for this time of year.
- Oklahoma. C. F. Stiles (August 20): Grasshoppers are moderately abundant in the western part of the State.
- Wyoming. C. L. Corkins (August 21): The survey of the adult grasshopper population at this time indicates that the outbreak is definitely on the wane.
- Idaho. C. Wakeland (August 20): Grasshoppers are moderately abundant in the southeastern part of the State.
- Nevada. G. G. Schweis (August 21): The grasshopper control campaign is now over for the year. The egg survey will start shortly after September 1.
- Arizona. C. D. Lebert (August 20): Grasshoppers (M. mexicanus) are causing considerable trouble in the alfalfa fields in the Salt River Valley. This is either a delayed hatch or a second brood--I believe it is a second generation. Most of this brood are now in the last instar and many of them fully winged. Poison is still being applied all over the valley.

MORMON CRICKET (Anabrus simplex Hald.)

- California. E. O. Essig (August 22): A few specimens of the Mormon cricket were found in Matterhorn Canyon, Yosemite National Park, in July. They are rarely reported from this State.

ARMYWORM (Cirphis unipuncta Haw.)

- Indiana. J. J. Davis (August 24): The armyworm was destructive to corn on bottom land near Boonville on August 15.

Illinois. L. H. Shropshire (August 20): Few armyworm outbreaks are reported from the central part of the State.

Minnesota. C. E. Mickel (August 27): The worst outbreak in many years has occurred in the southeastern part of the State. The third generation is now very abundant.

Iowa. G. C. Decker (August 10): Armyworms are being reported daily in most of the counties in north-central Iowa. Apparently, they have bred up in large numbers in foxtail and other grasses in stubble fields. They are reported as seriously damaging Sudan and millet fields.

GARDEN WEBWORM (Loxostege similalis Guen.)

Indiana. J. J. Davis (August 24): The alfalfa webworm (L. similalis) was quite destructive in some localities during the period from August 6 to 11. Definite records of destructiveness were received from White, Fulton, Clinton, Morgan, and Carroll Counties.

Missouri. L. Haseman (August 24): Larvae were abundant on pigweed and other plants late in July and early in August, and during the latter part of August many moths have been on the wing.

Iowa. C. J. Drake (August 2): The garden webworm (L. similalis) is quite common this year. On a farm near Indianola 14 out of 22 acres of soybeans were destroyed.

Nebraska. M. H. Swenk (August 20): A Burt County correspondent found the alfalfa fields in his vicinity harboring an abundance of moths the second week in August.

BEET WEBWORM (Loxostege sticticalis L.)

Minnesota. C. E. Mickel (August 27): Larvae were very abundant on August 1; heavy flights of moths occurred on August 10 - 25.

North Dakota. J. A. Munro (August 18): Beet webworms very abundant on beets, potatoes, and Russian thistle in Richland, Sargent, and Cavalier Counties.

SOD WEBWORMS (Crambus spp.)

Ohio. T. H. Parks (August 20): Sod webworm larvae were found injuring bentgrass on golf greens at Circleville on August 14. Reports of injury with specimens were also received from one of the golf courses near Columbus.

Illinois. L. H. Shropshire (August 20): Adults of several species are very abundant in northern Illinois.

Kentucky. M. L. Didlake (August 25): Adults of several species of sod webworms, including C. teterrellus Zinck. and C. trisectus Walk., are very abundant, the latter being most numerous; damage by larvae not very noticeable.

Iowa. C. J. Drake (August 2): Sod webworms are extremely abundant in golf

greens at Des Moines, Boone, Waterloo, Cedar Rapids, and other cities. Pasture fields have been greatly injured. They also did considerable damage to corn in the spring, and in the northern part of the State webworms are doing a considerable amount of damage to corn planted on government land leased for forage purposes.

Missouri. L. Haseman (August 24): Moths in considerable numbers were on the wing during the hottest period of the drought, and at this time we are getting complaints of nearly full-fed larvae in golf greens.

Nebraska. M. H. Swenk (August 15): A Clay County correspondent reported that his previously beautiful lawn had been about destroyed during the first half of August by sod webworms, aided by attacks of a leafhopper identified as Deltoccephalus inimicus Say. He reports that the birds did good service by digging out the webworms from the dead brown sod.

WHITE-LINED SPHINX (Sphinx lineata Fab.)

Iowa. G. C. Decker (August 10): We have numerous reports of larvae migrating from weed patches and stubble fields into soybeans and corn. One soybean field near Webster City was reported destroyed. Associated with the sphinx were a moderate number of Prodenia ornithogalli Guen.

C. N. Ainslie (August 22): The larvae are present everywhere this year, and only by continuous watching and hand-picking can serious injury be prevented.

JAPANESE BEETLE (Popillia japonica Newm.)

Connecticut. W. E. Britton (August 23): The Japanese beetle is apparently more abundant in the cities and towns than in preceding seasons. It is not yet commonly seen in the open country of Connecticut.

CEREAL AND FORAGE - CROP INSECTS

WHEAT

HESSIAN FLY (Phytophaga destructor Say)

Missouri. L. Haseman (August 24): J. R. Horton reports a 2-percent stubble infestation in northwestern Missouri; 11 percent in the west-central part; 14 percent in the southwest; 21 percent in the southeast; and 10 percent in the east-central part. One limited stubble survey in northeastern Missouri indicates a stubble infestation of only 1 to 2 percent, with practically every flaxseed examined dead, due, we believe, to the excessive heat. Limited counts at Columbia showed 100 percent mortality of flaxseeds, with temperatures at the surface of the soil as high as 157° F. and no vegetation in wheat stubble fields to shade the stubble and flaxseeds, which had weeks of abnormally high temperatures to endure.

New York. W. E. Blauvelt (August 13): The percentage of wheat infested by the Hessian fly was determined by examining 25 culms from each sample:

County	Infestation	County	Infestation
	<u>Percent</u>		<u>Percent</u>
Cayuga.....	7.3	Orleans	1.3
Chautauque.....	1.1	Oswego	4.0
Delaware	2.0	Seneca	7.1
Livingston	4.3	Tompkins	16.0
Monroe	4.5	Wayne	8.0
Niagara	1.3	Wyoming	2.0
Rensselaire	13.0	Yates	2.7
Saratoga	6.8		
Average for State		5.4	

A WHEAT STEM SAWFLY (Cephus pygmaeus L.)

New York. W. E. Blauvelt (August 13): The percentage of infestation of wheat by this sawfly was determined by examining 25 culms from each sample. Sawfly larvae from 42 of the samples were examined and all were C. pygmaeus.

County	Infestation	County	Infestation
	<u>Percent</u>		<u>Percent</u>
Cayuga	14.0	Orleans	3.8
Chautauque.....	3.0	Oswego	14.0
Delaware	4.3	Seneca	8.8
Livingston	7.6	Tompkins	8.0
Monroe	6.3	Wayne	6.2
Niagara	2.5	Wyoming	5.8
Rensselaire	9.7	Yates	1.3
Saratoga	3.0		
Average for State		6.6	

CORN

CHINCH BUG (Blissus leucopterus Say)

Ohio. J. S. Houser (August 22): Rye sown as a cover crop following early potatoes is seriously infested at Wooster. Sudan grass pasture is dying in spots from chinch bug damage. Several hundred bugs may be found in some clusters, and range in age from first-instar nymphs to adults. The fungus disease Sporotrichum globuliferum is killing many of the insects.

Illinois. L. H. Shropshire (August 20): Chinch bugs are very abundant at Des Plaines and have not been affected by rains so far this month.

Iowa. C. J. Drake (August 2): The infestation has been spreading northward.

Unless weather conditions greatly change the situation, 60 or more counties will be heavily infested with bugs in 1935. Losses from the first generation in 29 counties have been estimated by county agents and Federal crop reporters at \$8,275,000 for small grains and \$3,131,000 for corn. They estimate that the savings from the construction of barriers amounted to \$11,723,000. In the 29 counties most heavily infested, the loss to the corn crop was estimated at 9.35 percent and the savings at 35 percent. Farmers who failed to cooperate lost from 25 to 75 percent of their corn crop.

Missouri. L. Haseman (August 24): Chinch bugs are abundant in some fields, but are fewer than expected, due, we believe, to the excessively high temperatures in July. About 33-1/3 percent of the nymphs were still in the red stage on August 10-15, and about 50 percent of the corn was in the silo or shock. Recent rains will make food available, in most of the fields, for young bugs to mature in, but we do not have as many bugs now, on the average, as a year ago.

Nebraska. M. H. Swenk (August 15): The second brood has been developing during the period from July 15 to August 15. In a few instances the drying up of the corn through the drought forced a migration of the young bugs of the second brood, and in some instances barriers had to be put up to save feed crops.

Kansas. H. R. Bryson (August 25): The second brood of chinch bugs was very much reduced, owing to the extremely high temperatures that prevailed during July and the first 15 days in August. Fields in the vicinity of Manhattan, where enough bugs were present to destroy the young sorghum plants early in July, recovered and made some growth after the adult bugs of the first generation disappeared. At present the indications are that very few bugs will go into hibernation.

CORN LANTERN FLY (Peregrinus maidis Ashm.)

North Carolina. W. A. Thomas (August 15): This insect has already put in its appearance on late corn at Chadbourn and has done some damage by feeding and depositing eggs in the main ribs of the corn leaves. The exuding sap is attracting large numbers of flies, wasps, and beetles. The injury is apparently not so severe as was the case a few years ago.

Mississippi. J. M. Langston (August 21): On August 8 a grower at Lyman, Harrison County, sent specimens to this office with the statement that his corn had been seriously damaged.

CORN EAR WORM (Heliothis obsoleta Fab.)

Massachusetts. A. I. Bourne (August 20): The corn ear worm is possibly less abundant than usual, although it is still too early to tell definitely how serious it will be this year.

Connecticut. N. Turner (August 23): The corn ear worm is attacking sweet corn, but is not as abundant as last year.

New York. H. H. Campbell and M. C. Richards (August 13): The corn ear worm is beginning to appear in Nassau County. So far this season this pest has not been a serious factor, infestation running from 5 to 15 percent. H. C. Euckett states that, beginning next week, the second brood may be expected to cause trouble, resulting in serious infestation.

A. G. West (August 20): The corn ear worm is increasing in Suffolk County, but is less serious than a year ago.

Maryland. E. M. Cory (August 20): The corn ear worm is moderately abundant.

Virginia. H. G. Walker (August 22): Moderately abundant at Norfolk.

North Carolina. W. A. Thomas (August 10): This insect is extremely injurious in the Carolinas at this time. Practically all late corn at Chadbourn, which ranges in height from 1 to 5 feet, is badly riddled. In some instances the whole bud is filled with frass and all growth is apparently checked. Some of the plants have died.

Ohio. T. H. Parks (August 20): More corn ear worms than usual.

Illinois. L. H. Shropshire (August 20): Corn ear worms abundant in sweet corn.

Minnesota. C. E. Mickel (August 27): The infestation on sweet corn is 100 percent; on field corn, 90 percent. Worse in the southern third of the State.

Iowa. C. J. Drake (August 2): The corn ear worm is extremely abundant throughout the State. From 40 to 100 percent of the ears are infested. The average infestation will run between 75 and 100 percent of the ears.

C. N. Ainslie (August 22): Unusual numbers of this common and perennial pest in the cornfields of northwestern Iowa this summer. In many fields it is almost impossible to find an ear of corn that has not been injured and many have been entirely ruined. This is very serious, in view of the scarcity of feed for livestock.

North Dakota. J. A. Munro (August 18): Corn ear worm very abundant on both garden and field corn.

Missouri. L. Haseman (August 24): Very abundant in late mubbins that escaped the drought.

Nebraska. M. H. Swenk (August 15): During the period from July 15 to 20, additional reports of damage by the first brood of caterpillars were received from the counties east of the 100th meridian, but in greatly diminished numbers. Later, during the fourth week in July, similar reports were received from west of the 100th meridian, as from Wood Lake, Cherry County; Lewellen, Garden County; and Dalton, Cheyenne County. These are the first reports that we ever have had of injury in western Nebraska to corn tassels by the first brood.

SOUTHERN CORN STALK BORER (Diatraea crambidoides Grote)

Virginia. H. G. Walker and L. D. Anderson (August): The larger corn stalk borer is very abundant in many fields near Tidewater, Norfolk County. Several infestations of the lesser corn stalk borer (Elasmopalpus lignosellus Zell.) have also been observed.

LESSER CORN STALK BORER (Elasmopalpus lignosellus Zell.)

Arizona. C. D. Lebert (August 20): The lesser corn stalk borer has moderately damaged from 15 to 20 acres of corn in the vicinity of Safford. Larvae were taken from the roots and stalks of corn.

CARROT BEETLE (Ligyrus gibbosus DeG.)

Michigan. E. I. McDaniel (August 9): Adults have been reported as causing injury by feeding on the roots of Helianthus species at Augusta, and chrysanthemum at Three Rivers. It is also injuring corn and sunflowers. The injury is quite extensive, about a dozen beetles being found in each hill.

Minnesota. C. E. Mickel (August 27): L. gibbosus is very abundant at Anoka, Elk River, and Robbinsdale.

Missouri. L. Haseman (August 24): The carrot beetle has been unusually abundant during August, coming to lights at night as do June beetles in June. They have been feeding about the bases of weeds and cultivated plants, and birds have been busy digging them out, thus further injuring the plants.

CORN ROOT WORM (Diabrotica longicornis Say)

Tennessee. G. M. Bentley (August 20): D. longicornis was reported to be eating corn silks at Ashland City on August 4.

ALFALFA

ALFALFA WEEVIL (Hypera postica Gyll.)

California. A. E. Michelbacher (August 17): A survey of the area infested by the alfalfa weevil in middle California on August 16 showed the population to be lower than at any time this season. Both adults and larvae were scarce in the Tracy area, and but little more plentiful in the regions about Pleasanton and Niles.

Idaho. C. Wakeland (August 20): The alfalfa weevil is moderately abundant in eastern Idaho.

VELVETBEAN

VELVETBEAN CATERPILLAR (Anticarsia gemmatilis Hbn.)

Florida. F. S. Chamberlin (August 15): Infestations in Gadsden County range from light to severe.

FRUIT INSECTS

APPLE

CODLING MOTH (Carpocapsa pomonella L.)

New York. W. E. Blauvelt (August 20): After an apparent rest for a week to ten days, the codling moth seems to have come to life again and is making fresh entrances each day in Dutchess County, and is causing considerable injury on unsprayed trees in Suffolk County. Not many second-brood larvae are entering fruits in Clinton County.

E. R. Wagner (August 27): Stings are appearing in considerable numbers in badly infested orchards in Orleans County, where the first brood was not controlled.

Maryland. E. N. Cory (August 20): The third brood (second summer brood) of the codling moth is moderately abundant in western Maryland; numerous in some orchards.

Ohio. T. H. Parks (August 20): The codling moth is more abundant than usual and threatens to be serious in a few orchards where it has been troublesome for several years. In one orchard in Franklin County, healthy apples, which had received two cover sprays in June but no spray for the second generation, became quite wormy early in August. In most orchards the control is satisfactory.

Missouri. L. Haseman (August 24): During July there was practically no egg laying and up to August 20 no young worms. With more moisture and cooler temperatures, late moths are breeding and we may expect late worms.

Idaho. C. Wakeland (August 20): The codling moth is very abundant at Lewiston and in southwestern Idaho.

Nevada. G. G. Schweis (August 21): The codling moth is moderately abundant, and apparently damage is less than last year.

A PYRALID (Euzophera semifuneralis Walk.)

Indiana. L. F. Steiner (August 21): This borer is causing some damage to bridge-grafted apple trees in Vincennes. As high as 52 borers were found on a single trunk, working in new and diseased wood along the grafts. Adults are emerging and larvae of all instars seem to be present. (Det. by G. E. Marshall of Purdue University)

APPLE MAGGOT (Rhagoletis pomonella Walsh)

Connecticut. F. Garman (August 23): More apple maggots are emerging from the soil this year than last; and more have been seen in August in apple orchards than usual. The light crop of fruit will doubtless help

produce a heavier infestation than that which occurred last year.

LEAFHOPPERS (Cicadellidae)

Massachusetts. A. I. Bourne (August 20): The young of the late summer brood of apple leafhoppers are just beginning to be noticeable. We shall be able to state more definitely in our next report as to how injurious this brood will be.

New York. W. E. Blauvelt (August 13): The second brood of the white apple leafhopper (Tychlocyba pomaria McAtee) has begun to hatch in Ulster County. P. J. Chapman believes that the second brood is likely to be fairly heavy in some orchards and will probably cause some spotting of the fruit.

Maryland. E. N. Cory (August 20): Apple leafhoppers are extremely numerous in western Maryland.

SAN JOSE SCALE (Aspidiotus perniciosus Comst.)

Georgia. O. I. Snapp (August 20): Predators and parasites have greatly reduced the San Jose scale infestation at Fort Valley during the last 2 months; however, we expect an increase during the fall months as usual.

Texas. F. L. Thomas (August 20): The San Jose scale is very abundant on peaches at Waco.

Idaho. C. Wakeland (August 20): The San Jose scale is very abundant at Lewiston.

PEACH

ORIENTAL FRUIT MOTH (Grapholitha molesta Busck)

Connecticut. P. Garman (August 23): Infestation is uneven throughout the State. Parasites wintered successfully.

Georgia. O. I. Snapp (August 18): Of 21,472 Elberta peaches examined at Fort Valley, only 12, or 0.06 percent, were found to be infested. These peaches were harvested from an orchard in which no control measures against the moth were enforced. As usual, the fruit infestation was extremely light at this point and the insect is of no economic importance, which is attributed to the absence of a host for the hibernating broods of larvae.

Tennessee. G. M. Bentley (August 20): Serious injury in apple orchards located near peach orchards.

Mississippi. J. M. Langston (August 21): Injury to peach twigs by larvae has recently been observed at Hattiesburg in Forrest County, Jackson in Hinds County, and Starkville in Oktibbeha County.

PEACH BORER (Acgeria exitiosa Say)

Georgia. O. I. Snapp (August 20): The infestation is about average in Fort Valley. Moths have started to emerge in numbers. The common larval parasite Microbracon sanninoideae Gahan is now on the wing.

Indiana. J. J. Davis (August 4): The peach tree borer is reported as destructive at Angola.

PLUM CURCULIO (Conotrachelus nenuphar Hbst.)

Connecticut. W. E. Britton (August 24): The plum curculio is very abundant.

Georgia. O. I. Snapp (August 20): The infestation in the Georgia peach belt was heavier than average this year, and we are expecting a larger hibernating population than usual. Elbertas were attacked by a fairly heavy brood of second-generation larvae. The overwintered adults lived longer than usual, depositing some eggs throughout the entire peach season. Some after-harvest dusting is being done to reduce the number of adults before they enter hibernation quarters.

CHERRY

PEAR SLUG (Eriocampoides limacina Ratz.)

Indiana. J. J. Davis (August 24): The cherry slug defoliated cherry trees at South Bend early in the month.

CRANBERRY

A NOTODONTID (Datana drexelii Hy. Edw.)

Massachusetts. A. I. Bourne (August 20): We have a report of D. drexelii feeding on cranberry foliage in the bogs on Cape Cod.

GRAPE

GRAPE LEAFHOPPER (Erythroneura comes Say)

New York. W. E. Blauvelt (August 13): Grape leafhoppers are more numerous than for several years past and are causing serious injury in Niagara County.

Indiana. J. J. Davis (August 24): The grape leafhopper was abundant on grape early in the month at Peru and Brownsburg.

Nebraska. M. H. Swenk (July 15 to August 15): The grape leafhopper was reported attacking and injuring woodbine vines from August 10 to 15, as far north as Cedar County and as far northwest as Grant County.

GRAPE LEAF FOLDER (Desmia funeralis Hbn.)

Illinois. C. L. Metcalf (August 27): I have a report of an infestation of the grape leaf folder at Louisville, Clay County. Complete defoliation has occurred.

Mississippi. J. M. Langston (August 21): On August 10 a correspondent at Van Vleet, Chickasaw County, sent to us grape leaves with the following statement: "Almost every grape leaf is folded up like this."

PECAN

BLACK PECAN APHID (Melanocallis caryaefoliae Davis)

Georgia. T. L. Bissell (August 24): The black pecan aphid is barely evident in orchards at Walden. It is increasing in numbers and injury on Schley pecans in Milner, and will probably cause defoliation of this variety. Stuart and Mobile pecans are generally free.

PECAN WEEVIL (Curculio caryae Horn)

Georgia. T. L. Bissell (August 23): The first adult (male) was found on August 2 at Experiment. Abundant on August 13 at Milner in Stuart pecans and on August 21, 127 weevils were jarred from one Stuart tree. Emergence began about 2 weeks later than in 1933. Weevils are now abundant at Walden in one pecan orchard (Schley variety) near hickory trees.

TROPICAL FRUIT

FRUIT FLIES, (Anastrepha spp.)

Texas. P. A. Hoidale (August 25): The operation of traps in the Texas citrus groves for the week ending August 25 resulted in the taking of the following adult specimens: A. pollens Coq.--Mission 1, McAllen 1, Donna 11, Raymondville 2; A. serpentina Wied.--Mission 1, McAllen 2, Pharr 1, La Feria 1; Anastrepha sp. (fraterculus auct.)--McAllen 2, Weslaco 1. Five adult A. ludens Lowe were taken in the traps in Matamoros and 2 larvae of A. ludens and 9 of A. serpentina were taken from fruit shipped in from other parts of Mexico.

FIG

THREE-LINED FIG BORER (Ptychodes trilineatus L.)

Mississippi. G. L. Bond (August 11): The three-lined fig borer continues its heavy damage to fig trees along the coastal section of Jackson County.

TRUCK - CROP INSECTS

BLISTER BEETLES (Meloidae)

Maryland. E. N. Cory (August 9): Epicauta vittata Fab. is attacking tomato foliage and fruit in Harford County.

Alabama. J. M. Robinson (August 20): E. vittata is very abundant in Lee and Monroe Counties.

Mississippi. J. P. Kislenko (August 20): A very heavy infestation of E. lemniscata Fab. was observed on August 6, in the western part of Stone and the eastern part of Pearl River Counties on Bell peppers, causing injury not only to foliage but to fruit as well. On some stalks the beetles had injured every fruit by gnawing on fruit stems and cutting off sap circulation.

J. M. Langston (August 21): A grower at Morgan City, Leflore County, reported serious injury to tomato vines by E. lemniscata on August 1. On August 13 a correspondent at Louisville, Winston County, sent specimens of E. strigosa Gyll. to this office with the statement that dahlia blossoms were being injured.

Nebraska. M. H. Swenk (July 15 to August 15): The spotted blister beetle (E. maculata Say) continued to be injurious on potatoes in Box Butte County up to the end of July, except where the fields had been dusted.

STRIPED CUCUMBER BEETLE (Diabrotica vittata Fab.)

New Hampshire. L. C. Glover (August 27): The cucumber beetle is abundant throughout the State.

Illinois. L. H. Shropshire (August 20): The striped cucumber beetle has been very abundant during the past 3 weeks at Des Plaines. Considerable injury has been done by the beetles eating holes in the young melons (cantaloups).

North Dakota. J. A. Munro (August 18): The striped cucumber beetle is moderately abundant at Fargo.

Missouri. L. Haseman (August 24): The striped cucumber beetle has been very abundant on the cucurbits that escaped the drought.

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli Guen.)

Minnesota. C. E. Mickel (August 27): P. ornithogalli is working on soybeans at Rochester and Pipestone.

Iowa. C. J. Drake (August 6): The cotton caterpillar (P. ornithogalli) is extremely abundant in the State and is doing serious damage to garden crops, also to potatoes and gladiolus plants.

G. C. Decker (August 10): This insect is daily reported from numerous sections of the State, doing serious damage to potatoes, corn, and soybeans.

FALSE CHINCH BUG (Nysius ericae Schill.)

California. E. O. Essig (August 22): The false chinch bug has been a serious pest in various parts of central California.

POTATO AND TOMATO

A TENEBRIONID (Blapstinus pratensis Lec.)

Nebraska. M. H. Swenk (August 15): Potato growers in Box Butte County reported that this small black beetle was very numerous on the ground under the potato plants and was working on the plants just under the surface of the ground, keeping the new shoots eaten down to about a quarter of an inch below the soil surface. Some growers are quite insistent that this beetle has done serious damage. It was reported from Dundy County as working on and injuring the roots of corn.

POTATO STALK BORER (Trichobaris trinotata Say)

Maryland. E. N. Cory (August 16): The potato stalk borer is attacking potato roots in Cecil County.

Iowa. C. J. Drake (August 2): The potato stalk borer has been unusually abundant for 2 years. Many plants have been destroyed in the vicinity of Sioux City, Ames, Des Moines, and Boone.

TOMATO WORM (Phlegethontius sexta Johan)

Virginia. H. G. Walker and L. D. Anderson (August 20): The tomato horn worm has been causing noticeable damage in small areas on the Eastern Shore and the Northern Neck of Virginia.

TOBACCO WORM (Phlegethontius quinquemaculata Haw.)

Iowa. C. N. Ainslie (August 22): Truck farmers and home gardeners in the vicinity of Sioux City are contending this summer with a most unusual and destructive outbreak. The larvae have appeared in great numbers, eating not only the leaves and terminal shoots of the tomato plants but the fruit also. Continuous hand-picking has been the only remedy, and much damage is still being done.

Nebraska. M. H. Swenk (August 15): Reports from the Nebraska Panhandle, especially from Deuel and Banner Counties, indicated an unusual abundance of the larvae on potatoes and tomatoes during the fourth week in July.

Nevada. G. G. Schweis (August 21): Tobacco worms (Phlegethontius sp.) are reported as doing much damage to tomatoes.

POTATO TUBER WORM (Gnorimoschema operculella Zell.)

Iowa. C. J. Drake (August 2): The potato tuber moth has been observed working in potato patches in Story and Greene Counties. Although it has

been fairly well established in the State for several years, it has not been observed to do any commercial damage.

POTATO LEAFHOPPER (Euposca fabae Harr.)

Connecticut. N. Turner (August 23): Severe tipburn on unsprayed potatoes throughout the State. Severe injury on some fields of garden beans in southern part of the State.

A MIRID (Engytatus geniculatus Reut.)

California. J. C. Elmore (June 15): This bug has been accused of causing serious damage to tomatoes. It is common in tomato fields in Los Angeles, Orange, and San Diego Counties, occasionally becoming rather numerous. Injury consists of crescent-shaped scars on the vines, which causes them to break easily. This injury has been supposed to cause blossom drop but this has not been demonstrated. This bug has not been numerous enough to attract attention since 1931.

POTATO APHID (Illinoia solanifolii Ashm.)

Connecticut. N. Turner (August 23): The abundant rains and large number of predators reduced the number of aphids so that little damage has been done.

TOMATO PSYLLID (Paratrioza cockerelli Sulc.)

Wyoming. C. L. Corkins (August 21): A very severe infestation is reported over all sections of the State. There will not be more than a 35-per-cent crop of table-stock potatoes from the irrigated regions.

BEANS

MEXICAN BEAN BEETLE (Epilachna corrupta Muls.)

Maine. H. B. Peirson (August 10): The Mexican bean beetle has been found at Portland and Yarmouth, as well as at East Vassalboro (north of Augusta), where they are quite severe, and at Gardiner, where they are very severe.

J. H. Hawkins (August 18): The Mexican bean beetle survived one of the coldest winters on record and has spread well over the region south of Piscataquis County and from the New Hampshire line to the Penobscot River. It is impossible to estimate the damage. Commercial losses occur mostly in southwestern Maine.

New Hampshire. L. C. Glover (August 27): Damage to beans is reported as much less severe than last year. There are, however, small restricted areas where severe feeding has been reported.

Massachusetts. A. I. Bourne (August 20): Beetle infestation has been very

spotted, some fields showing considerable injury while others are comparatively free. On the whole, the beetle is considerably less abundant than last year.

Rhode Island. A. E. Stene (August 1): The Mexican bean beetle is moderately abundant.

Connecticut. N. Turner (August 23): Attacking garden beans in southern Connecticut; less abundant than last year but still very destructive.

Maryland. E. N. Cory (August 20): The Mexican bean beetle is moderately abundant; on the increase again.

Tennessee. G. M. Bentley (August 20): The Mexican bean beetle is destructive, except in the eastern and middle sections, where proper dusts or sprays have been applied.

Kentucky. M. L. Didlake (August 25): The Mexican bean beetle is moderately abundant at Lexington, Stamping Ground, and Greensburg.

Alabama. J. M. Robinson (August 20): Very abundant at Auburn.

Mississippi. M. R. Smith (August 20): The first beetles to be found in Oktibbeha County were discovered in Starkville on August 8. It has apparently taken the insects 6 years to advance westward from Columbus to Starkville.

R. B. Doen (August 13): The Mexican bean beetle is very abundant in northeastern Mississippi where it is doing serious local damage.

Wyoming. C. L. Corkins (August 21): Moderately abundant; now found doing damage in Goshon County.

LIMA BEAN VINE BORER (Monoptilota pergratialis Hulst.)

North Carolina. W. A. Thomas (August 1): Lima beans in the Chadbourn area are very heavily infested. There is hardly a vine that does not show swellings made by this insect. Some plants have more than a dozen of these swollen areas, causing them to break off readily when handled. Borers are much more numerous this season than at any time during the past 10 years.

CABBAGE

IMPORTED CABBAGE WORM (Ascia rapae L.)

Ohio. T. H. Parks (August 20): The imported cabbage worm is very injurious this year.

Indiana. J. J. Davis (August 24): Cabbage worms were reported as very destructive in the extreme northern end of the State on August 12. About the same time we observed that a number of large cabbage fields

south of Indianapolis were severely damaged.

Illinois. L. H. Shropshire (August): The imported cabbage worm is abundant in northern Illinois.

Nebraska. M. H. Swenk (August 20): Moderately abundant generally over the State.

CABBAGE WEBWORM (Hellula undalis Fab.)

North Carolina. W. A. Thomas (August 21): The cabbage webworm is present in injurious numbers on practically all cruciferous plants growing in the Chadbourne area. It is almost impossible to hold a stand of young plants because of the activities of this insect.

CABBAGE APHID (Brevicoryne brassicae L.)

North Dakota. J. A. Munro (August 18): Aphids are very abundant on cabbage.

Nebraska. M. H. Swenk (August 15): The cabbage aphid was reported as a pest of cabbage up to the end of the first week in August.

HARLEQUIN BUG (Murgantia histrionica Hahn)

North Carolina. W. A. Thomas (August 20): This insect has developed rapidly during the past month and at this time is causing serious injury to collards in the Chadbourne area. In some instances as many as 50 adults have been observed on a single plant. In a few home gardens the plants have either been defoliated or killed outright.

Indiana. J. J. Davis (August 24): The harlequin bug was reported as being destructive at Montgomery on August 19. G. E. Gould observed that it was not uncommon in a cabbage patch at La Fayette.

Mississippi. J. M. Langston (August 21): A grower at Scooba, Kemper County, reported serious injury to collards on August 15.

Texas. F. L. Thomas (August 24): The harlequin bug is very abundant and is causing injury to turnips at Fairbanks, Harris County.

MELONS

MELON WORMS (Diaphania spp.)

North Carolina. W. A. Thomas (August 1): D. hyalinata L. and D. nitidalis Stoll. began showing up somewhat earlier than usual on cantaloup. There is hardly a perfect cantaloup in the Chadbourne area and practically all late squash has ceased bearing because of the activities of these insects.

Mississippi. J. M. Langston (August 1): Cantaloups heavily infested with D. nitidalis were received from Noxapater, Winston County, on August 1. A grower at Houston, Chickasaw County, also reported heavy loss during the summer.

MELON APHID (Aphis gossypii Glov.)

Indiana. J. J. Davis (August 24): The melon aphid was destructive during the first half of the month at Dugger, Colfax, Bristol, Sunman, and La Fayette.

Illinois. L. H. Shropshire (August): Melon aphids are fairly abundant at Des Plaines.

Nebraska. M. H. Swenk (July 15 to August 15): Complaints of injury on cucumbers were much more numerous during the period here covered, especially between August 5 and 15, than during the month ending July 15. These reports came from the southeastern part of the State, from Cedar County southwestward through Blaine County to Chase County.

SQUASH

SQUASH BUG (Anasa tristis DeG.)

New Hampshire. L. C. Glover (August 27): The squash bug is abundant throughout the State. Earlier in the season there were very few reports of its being present in any numbers. It was thought that the severe winter had probably killed large numbers of the overwintering adults.

Connecticut. D. C. Elliott (August 23): The squash bug was sufficiently abundant to kill plants on one truck farm; less abundant but injurious in other localities.

Minnesota. C. E. Mickel (August 27): Seems to be building up its population in the southern part of the State.

Nebraska. M. H. Swenk (August 15): From July 17 to 28, the squash bug was complained of as attacking squash and pumpkin vines in central Nebraska, from Polk to Hooker and Hayes Counties.

Idaho. C. Wakeland (August 20): Killing squash vines completely in southwestern Idaho. It is also severely injuring watermelons, having destroyed several acres in Washington County.

Utah. G. F. Knowlton (August 2): In one garden at Logan squash bugs killed the squash plants and then accumulated on cucumber.

SQUASH BORER (Melittia satyriniformis Hbn.)

Connecticut. N. Turner (August 24): The squash borer is generally abundant and destructive in southern Connecticut on Hubbard squash.

New York. W. E. Blauvelt (August 13): The squash vine borer is especially numerous and has caused severe losses in several fields in Cayuga County.

(August 20): The squash vine borer is very serious this year in Suffolk County and was found on one farm in Nassau County.

Maryland. E. M. Cory (August 7): The squash borer is attacking Hubbard squash in Baltimore County.

Illinois. L. H. Shropshire (August 20): The squash vine borer has been abundant and very destructive to plantings of Hubbard squash in northern Illinois.

Nebraska. M. H. Swenk (August 15): The squash vine borer has been troublesome in Polk County.

STRAWBERRY

STRAWBERRY ROOT APHID (Aphis forbesi Weed.)

North Carolina. W. A. Thomas (August 20): The strawberry root aphid and its attendant ant are abundant and apparently doing considerable damage around Chadbourn. They are apparently more in evidence this season than last year.

TARNISHED PLANT BUG (Lygus pratensis L.)

Ohio. E. W. Mendenhall (August 10): In some strawberry plantations near Lancaster, Fairfield County, tarnished plant bugs are quite abundant.

PEPPER

. PEPPER WEEVIL (Anthonomus eugenii Cano)

California. J. C. Elmore (July 31): The pepper weevil is very abundant in Orange County, where from 25 to 95 percent of the pepper crop is damaged. Temperatures higher than normal during the winter, followed by an early spring, have contributed to this heavy infestation. Since 1924, there have been 4 years of this type so far as pepper weevil damage is concerned. They were 1926, 1928, 1931, and 1934, all characterized by a lack of low minimum temperatures with super-normal spring temperatures. The area was cleaned up of host plants (peppers and nightshade) during the winter and now has only slight infestation.

F O R E S T A N D S H A D E - T R E E I N S E C T S

FALL WEBWORM (Hyphantria cunea Drury)

Massachusetts, Maine, New Hampshire, and Vermont. J. V. Schaffner, Jr.
(August 24): Recent reports indicate that webs are rather common in many localities in Maine, New Hampshire, Vermont, and Massachusetts, though in most places considerably less than in 1933.

Connecticut. R. B. Friend (August 23): The fall webworm is very common throughout the State.

New York. R. E. Horsey (August): A fall webworm, H. textor Harr. or H. cunea, is numerous on black walnut, hickory, cherry, and apple in woods along the west side of Conesus Lake, Livingston County. Black walnut trees are common there and as many as six nests were found on one isolated tree. However, no serious defoliation was seen, although the black walnut trees were most all infested.

North Carolina. W. A. Thomas (August 1): Fall webworms appeared at Chadbourne somewhat earlier than in normal seasons and were fairly abundant during the third week of June. They are now seldom seen in that area and did not reach the widespread distribution of last year. The damage has been much lighter than in former years.

Mississippi. M. R. Smith (August 20): Fall webworm injury, which was so noticeable on pecan, hickory, and persimmon in the vicinity of State College several months ago, has almost entirely disappeared.

J. P. Kisilanko (August 20): The fall webworm is moderately abundant on pecans and other trees in Stone and Forrest Counties.

Washington and Oregon. C. F. Doucette (August 20): Around Sumner and Puyallup, Wash., the prominent webs are quite common, nearly every pear or apple tree in home yards having one, two, or three webs. They are also seen occasionally on cherry and locust trees in this section. They were much more numerous in Clark County, Wash., and around Portland than in the Sumner-Puyallup section. In addition to the trees named above webs were observed on walnut, maple, ash, alder, and prune in the Portland area, one alder tree east of Portland having 21 distinct webs.

GYPSEY MOTH (Porthetria dispar L.)

Maine. H. B. Peirson (August 16): An outbreak of the gypsy moth was found in Pittston. Females were seen laying eggs in Augusta on August 14.

New England, New Jersey, and Pennsylvania. A. F. Burgess (August 7): The reports on defoliation for all of the towns in the infested area this year have been received with the exception of a few towns in southern Maine and an area in southeastern New Hampshire. Records were made by State officials but the information has not been submitted to us. Records for Vermont, Massachusetts, Rhode Island, and Connecticut are complete and show no extensive areas of defoliation in Vermont and

Connecticut but slight increases over last year; a considerable increase in Rhode Island, totalling somewhere in the vicinity of 13,000 additional acres showing from slight to complete defoliation; in Massachusetts about 30,000 acres less defoliation than last year (although in the southeastern section of this State there was a decided decrease from last year, this was offset, to some extent, by the heavy increase in more western sections of the State); in Maine, incomplete records indicate about a 40,000-acre increase over last year; and in New Hampshire incomplete records show an increase this year of over 50,000 acres. For the entire area, to date, there is nearly a 70,000-acre increase over that reported last year, with the probability that this will be considerably greater when the records for Maine and New Hampshire are complete. In New Jersey 21 male moths have been taken from assembling cages in sections of Denville, Mendham, Morris, and Randolph. All of the cages put out by State officials were placed in the section where the above towns join, covering an area several miles in diameter from the point at which the infestation was found last April. To date 1 male has been taken in Denville; 1 in Mendham; 12 from one cage, 2 from another, and 1 from another in Morris; and 3 from one cage and 1 from another in Randolph. In Pennsylvania, 11 male moths have been taken from assembling cages in the following towns: Blakely, 1; Covington, 3 from a single cage; Fairview, 1; Foster, 3 from a single cage; Franklin (in Luzerne County), 1; Lausanne, 1; and Mauch Chunk, 1. No male moths have been taken at any of the cages in Vermont, Massachusetts, or Connecticut.

BROWN-TAIL MOTH (Nygmia phaeorrhoea Don.)

Maine. H. B. Peirson (August 10): A female and an egg mass of the brown-tail moth were found at Bar Harbor.

BAGWORM (Thyridopteryx ephemeraeformis Haw.)

Connecticut. W. E. Britton (August 23): Several Norway maple trees on the streets of Bridgeport were partially defoliated by the larvae of the bagworm.

Ohio. T. H. Parks (August 20): The bagworm is quite serious this year, notwithstanding the extremely cold weather last winter.

Indiana. J. J. Davis (August 24): Bagworms were defoliating cedar, arborvitae, and boxelder especially at Dublin, Frankfort, Indianapolis, and La Fayette. Reports were coming in the last of July and the first of August.

Kentucky. M. L. Didlake (August 25): Bagworms are very abundant on evergreens in Lexington, Hartford, and over the State generally.

Alabama. J. M. Robinson (August 20): Bagworms are abundant in Lee, Jackson, and Tallapoosa Counties.

WALNUT CATERPILLAR (Datana integerrima G. & R.)

Michigan. E. I. McDaniel (August 2): The walnut datana is present in the southern part of the State. All the walnut, butternut, and hickories are

being defoliated rapidly. This caterpillar was unusually abundant last year.

ALDER

A CHRYSOMELID (Phytodecta americana Schffr.)

Maine. H. B. Peirson (August): A leaf beetle, P. americana, is very abundant on Mount Desert Island and the nearby mainland. Much alder is completely skeletonized.

ALDER FLEA BEETLE (Haltica bimarginata Say)

Maine. H. B. Peirson (August 1): The alder flea beetle is general in the State and causing heavy defoliation.

J. V. Schaffner, Jr. (August 23): Heavy infestations of larvae were noted on speckled alder, on August 6-18, between Bangor and Millinocket, being probably heaviest in the vicinity of Lincoln along the Penobscot River. Larvae are full grown and are moving down to pupate.

A SAWFLY (Nematus sp.)

Maine. H. B. Peirson (August 19): A sawfly, Nematus sp., is abundant in Andover where it is stripping the alder very severely.

ASH

CARPENTER WORM (Prionoxystus robiniae Peck)

North Dakota. J. A. Munro (August 22): During the current year the carpenter worm has been found in 8 additional counties in southwestern North Dakota. This insect is now known to occur throughout the southern three-fourths of the State.

A BARK BEETLE (Leperisinus aculeatus Say)

Minnesota. C. E. Mickel (August 27): L. aculeatus was found on ash wood stored in a basement in Blue Earth County.

Nebraska. M. H. Swenk (July 15 to August 15): During the period July 17 to August 9 there were many complaints of damage to ash trees, chiefly in northeastern Nebraska, but also in Sarpy, Douglas, Polk, Howard, and Pawnee Counties. This attack, combined with the drought, probably accounts for the death of many ash trees.

BEECH

BEACH BLIGHT AFHID (Prociphilus imbricator Fitch)

Mississippi. J. P. Kislanko (August 20): An exceedingly heavy infestation on Fagus americana was observed today about 15 miles west of Laurel, Jones County,

GIANT APHID (Longistigma caryae Harr.)

Mississippi. J. P. Kislanko (August 20): Observed in large numbers on beech trees 15 miles west of Laurel, Jones County, on August 17.

BEECH SCALE (Cryptococcus fagi Baer.)

Maine. J. V. Schaffner, Jr. (August 24): R. C. Brown reports that 21 additional townships in Washington, Penobscot, Hancock, and Waldo Counties have been infested this year. There was a very high mortality of the scale where it was not covered by snow or some other protective covering during the low temperatures of the past winter. A low mortality on tree trunks near the ground and on some of the roots has permitted perpetuation of the infestation.

BIRCH

BIRCH LEAF MINER (Fenusa pumila Klug.)

Maine. H. B. Peirson (August 12): The birch leaf-mining sawfly (F. pumila) is very abundant, the infestation being generally heavy in the State, especially in gray birch growths.

LEAF MINING SAWFLY (Phyllotoma nemorata Fall.)

New England and New York. J. V. Schaffner, Jr. (August 23): Observations on August 13-17 in Western Maine, northern New Hampshire, Vermont, and the Adirondack section of New York, show that there is a general increase in infestation over last year, except in the areas in the Adirondacks. The heaviest infestation noted was at Bethel, Maine, where approximately 15 to 20 percent of the leaves on the gray and paper birch are infested. A light infestation was found in Warwick, Mass.

BOXELDER

A GALL MITE (Eriophyes sp.)

Mississippi. J. M. Langston (August 21): On July 25 a correspondent at Kosciusko, Attala County, sent to this office some boxelder leaves heavily infested with galls caused by mites belonging to the genus Eriophyes.

CATALPA

CATALPA SPHINX (Ceratonia catalpae Bdv.)

Virginia. H. G. Walker and L. D. Anderson (August 20): Reported stripping the leaves from several catalpa trees in Norfolk. This is the second season they have been noticed, but practically all of the larvae are heavily parasitized and further trouble from this brood is not expected.

Kentucky. M. L. Didlake (August 25): Catalpa sphinx larvae are very abundant in Lexington, Louisville, Waynesburg, Parksville, and Somerset.

ELM

ELM LEAF BEETLE (Galericella xanthomelaena Schr.)

Massachusetts, Rhode Island, and Connecticut. J. V. Schaffner, Jr. (August 24): Severe infestations have been reported throughout the residential sections of Ware, Mass., Providence and Woonsocket, R.I., and several towns between Willimantic and New Haven, Conn.

Connecticut. W. E. Britton (August 23): This insect caused considerable injury in certain sections although, on the whole, it was probably less destructive than in 1933. Many pupae have been killed this year by the white mold (Sporotrichum globuliferum).

Ohio. T. H. Parks (August 20): Larvae of the second generation of the elm leafbeetle are now feeding on European elms at Columbus.

California. E. O. Essig (August 22): The European elm leaf beetle is abundant in parts of the San Joaquin and Sacramento Valleys.

D. B. Mackie (August): The elm leaf beetle is rapidly extending its area on the west side of the Sacramento Valley. It is moving in a southerly direction and has reached as far south as Williams, Colusa County. A new infestation, discovered at Port Costa, Contra Costa County, represents a jump of 70 miles from the nearest known infestation.

LARGER ELM LEAF BEETLE (Monocosta coryli Say)

Virginia. L. D. Anderson and H. G. Walker (August 13): Larvae of M. coryli have completely defoliated most of the elm trees around the Government locks at Lake Drummond. Eggs, larvae of all sizes, and adults were found on the trees. This pest was reported from this locality last year. This pest is usually very scarce in Virginia.

A LACEBUG (Corythucha ulmi O. & D.)

Massachusetts, Connecticut, and New York. E. P. Felt (August 25): The elm lace bug (C. ulmi) occurred abundantly on isolated groups of elms at Stamford, Kent, and Canaan, Conn.; Brainard, N.Y.; and Adams, Mass.

ELM SCURFY SCALE (Chionaspis americana Johns.)

Indiana. J. J. Davis (August 24): The elm scurfy scale is abundant on elm at Indianapolis.

JUNIPER AND CEDAR

CEDAR BARK BEETLE (Phloeosinus dentatus Say)

Mississippi. J. M. Langston (August 21): Specimens taken from cedar trees

at Hattiesburg on August 5 were recently received at this office, with a report that cedars and closely related plants were rather heavily infested.

LOCUST

LOCUST BORER (Cyllene robiniae Forst.)

Connecticut. E. P. Felt (August 25): The locust borer is quite numerous in southeastern New York and was brought to notice through the issuance of numerous beetles from infested wood in a cellar.

Nebraska. M. H. Swenk (July 15 to August 15): A Cheyenne County correspondent reported on August 12 that he had lost many black locust trees, some of them from 6 to 8 inches in diameter, through attack by the locust borer.

MAPLE

GREEN-STRIPED MAPLE WORM (Anisota rubicunda Fab.)

Connecticut. W. E. Britton (August 23): Red maple trees were reported as being stripped in one section of Warren, in Litchfield County.

A GEOMETRID (Physostegania pustularia Guen.)

Maine. H. B. Feirson (August 10): A measuring worm, P. pustularia, has been abundant on red maple at Bar Harbor.

SUGAR-MAPLE BORER (Glycobius speciosus Say)

Vermont and New Hampshire. E. F. Felt (August 27): Injury is extremely common on sugar maples along highways in both Vermont and New Hampshire, and a very large percentage of the dead branches and dying parts of trees is attributable to the work of this insect.

FLAT-HEADED APPLE TREE BORER (Chrysobothris femorata Oliv.)

Indiana. J. J. Davis (August 24): The flat-headed maple borer was reported as being destructive to maples at Elkhart, Plainville, and Notre Dame, and to apples at Sharpsville.

OAK

OAK TWIG PRUNER (Hypermallus villosus Fab.)

Rhode Island. A. E. Stone (August 1): The oak tree pruner is showing up in unusually large numbers.

Connecticut. R. B. Friend (August 23): Abundant on oaks throughout the State.

Maryland. E. N. Cory (August 21): The long-horned beetle is attacking maples in Kent County.

A FLOWER BEETLE (Euphoria herbacea Oliv.)

Maryland. E. N. Cory (August 2): Found attacking oak trees in Baltimore County.

FINE

WHITE-PINE WEEVIL (Pissodes strobi Fock)

Connecticut. E. F. Telt (August 24): The white-pine weevil is somewhat generally prevalent in southwestern New England, killing the leaders.

BLACK TURPENTINE BEETLE (Dendroctonus terebrans Oliv.)

Mississippi. J. M. Langston (August 21): On August 16, Inspector J. F. Kislanko sent to this office a number of adults with a report that several large yellow pine trees near McLaurin, Forrest County, were rather heavily infested.

COMMON FINE SAWYER (Monochamus notatus Drury)

Maryland. E. N. Cory (August 21): Attacking white and Austrian pines in Montgomery and Baltimore Counties.

A SCOLYTID (Pityophthorus sp.)

Massachusetts. A. I. Bourne (August 20): We have a record of the occurrence of the small beetle Pityophthorus sp. on white pine twigs in Worcester County.

A FINE TIP MOTH (Eucosma gloriola Hefner.)

Maine. H. B. Feirson (August 1): A pine tip moth, E. gloriola, is very abundant in the tips of laterals in white pine plantations.

FINE NEEDLE SCALE (Chionaspis pinifoliae Fitch)

Utah. G. F. Knowlton (August 3): The pine leaf scale is seriously damaging a number of Austrian pines on the Utah Agricultural College campus. Other pine and spruce trees are being damaged slightly.

POPULAR

TERRAIN SCALE (Lecanium nigrofasciatum Ferg.)

Kentucky. M. L. Didlake (August 25): The terrain scale is unusually abundant on poplar at Maysville, Breeding, and Lexington.

WILLOW

EUROPEAN WILLOW BEETLE (Flagioidera versicolora Leich.)

Massachusetts and New Hampshire. J. V. Schaffner, Jr. (August 24): The willows in eastern Massachusetts and southern New Hampshire show severe injury. C. E. Hood has found that there are at least three and a partial fourth generations of this species in eastern Massachusetts. In many localities a late spray has been applied to willows in parks, on roadsides, and on private estates.

Connecticut. W. E. Britton (August 23): Glossy-leaf willows are now brown in nearly all portions of the State.

INSECTS AFFECTING GREENHOUSE

AND ORNAMENTAL PLANTS

ASTER

GARDEN FLEA HOPPER (Halticus citri Ashm.)

Maryland. E. N. Cory (August 21): The garden flea hopper was attacking calendulas and asters in Frederick County and parsley in Howard County.

CHRYSANTHEMUM LACEBUG (Corythucha marmorata Uhl.)

Nebraska. M. H. Swenk (August 15): During the first week in August a number of people living in Lincoln reported that their asters were being injured or destroyed by the chrysanthemum lacebug.

AZALEA

A TINGID (Stethanitis pyrioides Scott)

Virginia. L. D. Anderson and H. G. Walker (August 18): This tingid was seriously injuring azalea plants in a large private garden in Norfolk. All stages were present, but they were readily controlled with sprays.

BARBERRY

A PYRALID (Omphalocera dentosa Grote)

Connecticut. W. E. Britton (August 23): The larvae defoliated portions of Japanese barberry hedges at Hamden and Waterbury.

BOXWOOD

MEALY FLATA (Ormenis pruinosa Say)

Pennsylvania. E. F. Felt (August 25): The lightning leafhopper was reported as somewhat numerous on ornamental boxwood in the Philadelphia area.

FLORIDA RED SCALE (Chrysomphalus aonidum L.)

Mississippi. J. M. Langston (August 21): Infested boxwood twigs were received from Canton, Madison County, on August 17.

CRAPEMYRTLE

CRAPEMYRTLE APHID (Myzocallis kahawaluokalani Kirk.)

Georgia. T. L. Bissell (August 16): The crapemyrtle aphid is more abundant at Experiment than in the past several years. Considerable black mold was observed in honeydew.

Mississippi. J. F. Kislanko (August 20): The crapemyrtle aphid was very abundant on crapemyrtle in Forrest, Lamar, and Jones Counties on August 17, in some cases causing heavy defoliation.

DOGWOOD

A BORER (Synanthedon scitula Harr.)

Maryland. E. N. Cory (August 21): S. scitula Harr. was attacking dogwood in Baltimore and Wicomico Counties.

GLADIOLUS

GLADIOLUS THRIPS (Taeniothrips gladioli M. & S.)

Connecticut. B. H. Walden (August 23): Present in some plantings but less abundant than for the past two seasons.

North Dakota. J. A. Munro and assistants (August 18): Specimens were sent in from Mandan, Morton County, with a report that they are prevalent on gladioli in that vicinity.

Iowa. C. J. Drake (August 2): Hot weather has greatly reduced the injury by the gladiolus thrips in Iowa this year. This thrips is very common in gladiolus plantings in the vicinity of Ames, but it has not done any more damage to gladiolus plants than have two or three other common species of thrips.

LILAC

LILAC LEAF MINER (Gracilaria syringella Fab.)

Maine. H. B. Peirson (August 10): This is a major pest on both common and

Japanese lilacs.

ROSE

A ROSE TWIG GIRDLER (Agrilus communis rubicola Ferrin)

Indiana. J. J. Davis (August 24): Reported as destructive to Rugosa roses at Decatur and Muncie during the month.

CURLED ROSE SAWFLY (Emphytus cinctipes Nort.)

Washington. C. F. Doucette (August 20): The coiled rose worm has been quite abundant on the rose bushes in my garden at Summer this summer, some of the plants being completely defoliated and all of them developing a ragged appearance. The peak of the feeding seemed to come about the first week in August, and now there are only a few slugs in evidence and the plants are producing more foliage free from injury.

ROSE APHID (Macrosiphum rosae L.)

Washington. C. F. Doucette (August 20): This aphid has been more or less abundant on rose bushes in my garden at Summer this summer. One spray was applied early in June, at which time the aphids were extremely numerous and would have seriously injured the plants, if they had not been killed. At present they seem to be increasing again to the point where another spray will be required.

INSECTS ATTACKING MAN AND

DOMESTIC ANIMALS

MAN

BEDBUG (Cimex lectularius L.)

Indiana. J. J. Davis (August 24): Bedbugs have been reported more frequently than for many years. In one place, Windfall, poultry houses in the community were badly infested.

Nebraska. M. H. Swenk (August 15): Reports of bedbugs in hen houses and residences came from Perkins and Dawes Counties on July 23 and August 3, respectively.

EYE GNATS (Hemolates spp.)

Mississippi. J. F. Kislenko (August 20): Eye gnats are very abundant in several counties in southern Mississippi. In Wiggins "pink-eye" in children is an epidemic and is being attributed to abundance of eye gnats.

BLACK WIDOW SPIDER (Latrodectes mactans Fab.)

Kansas. H. B. Bryson (August 25): A number of reports on the occurrence of the black widow spider have been received this month. Reports have been received from Sun City, Lewis, Hugoton, Jewell, and Oxford.

Idaho. C. Wakeland (August 20): Distribution increased, as indicated by collections at Moscow and Sandpoint, in northern Idaho.

Utah. G. F. Knowlton (August 16): Black widow spiders have received more attention than usual this year from the general public. Specimens have been brought in to this department a number of times this summer, and numerous inquiries have been made.

CATTLE

SCREW WORMS (Cochliomyia spp.)

Florida. F. S. Chamberlin (August 13): The screw worm infestation in Gadsden County is increasing in severity.

Mississippi. J. F. Kislanko (August 20): Screw worms are very numerous and are doing severe damage and causing losses in livestock. Reports are coming from George, Stone, Jackson, Harrison, and other counties. The greatest loss from worms is found among sheep and hogs, with lower mortality among cattle, mules, and horses, because these animals are more accessible to treatment. One farmer stated that of 250 head of sheep he had lost 50 by the 11th of August. Another stated that his loss will amount to several hundred. Wool will be brought to Wiggins from several counties in southern Mississippi, and it is hoped that a more accurate survey will be made.

HORSE

Midges (Chironomidae)

Oklahoma. C. F. Stiles (August 22): One of the small blood-sucking midges, which belongs to the family Chironomidae, has been reported from Pottawatomie County, near Dale. These insects have been causing considerable annoyance and damage to livestock, such as horses, mules, and cattle. The chief remedy at this time seems to be keeping the livestock in barns at night. This insect is breeding in the North Canadian River, into which the sewage of Oklahoma City is being dumped. The river is very low at this time, and the midges can be seen there by the millions at about dusk each evening, and they annoy livestock throughout the entire night.

HOUSEHOLD AND STORED - PRODUCT

INSECTS

TERMITES (Reticulitermes spp.)

Maryland. E. N. Cory (August 21): One report of injury to flowers by termites was received from White Marsh on July 31.

Indiana. J. J. Davis (August 24): Inquiries regarding termites are numerous, as usual, and are coming from every point in the State.

Nebraska. M. H. Swenk (August 15): A report of the destruction of the sun-porch on a residence in Lincoln by the activities of the termite R. tibialis Bks. came to our attention the last week in July.

ANTS (Formicidae)

Indiana. J. J. Davis (August 24): House ants and, to a lesser extent, lawn ants have been very abundant. Also, the large carpenter ants have been reported several times working in timbers in dwellings.

Mississippi. M. R. Smith (August 20): No ant in the State is the source of more complaints than the fire ant (Solenopsis xyloni McC.). Often the winged forms which appear in houses or on porches in large numbers are mistaken by property owners for winged termites. The following new infestation of the Argentine ant (Iridomyrmex humilis Mayr) has been reported recently 3 miles west of Aberdeen, Monroe County. W. J. Wallace reports finding 153 fertile Argentine ant queens in a nest in Columbus. In one instance a trail of ants 40 yards long was found leading from a nest to a house. Pharaoh's ant (Monomorium pharaonis L.) has been reported as annoying in homes and stores in the following places in this State: West Point, Starkville, and Columbus. In the latter locality, the ants were found nesting between strips of paper, feeding on bread and grease, and even infesting beds. Mr. Wallace found the ants Rheidole metallescens splendidula Whlr. infesting a house in Columbus where they sought bread and grease.

Nebraska. M. H. Swenk (August 15): In Platte County a large maple tree was killed by becoming honey-combed with the burrows of the carpenter ant (Camponotus herculeanus pennsylvanicus DeG.), on July 20.

A BOSTRICHID (Polycaon stouti Lec.)

California. H. C. Donohoe (August 3): Two adults emerged in June and July from a mahogany-veneered dining table purchased 2 1/2 years ago, in Fresno. Emergence holes in the table top were about 1/8 inch in diameter.



INSECT PEST SURVEY BULLETIN

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THE MORE IMPORTANT RECORDS FOR SEPTEMBER 1934

Wireworm damage, particularly to potatoes, was reported from Wisconsin, North Dakota, Missouri, and South Carolina.

In this number of the survey bulletin a detailed report is given on the abundance of the hessian fly throughout the United States. In general this insect is at a low ebb in the main winter-wheat regions.

Chinch bugs were moving into winter quarters in large numbers throughout the eastern part of their range. An unusual condition is reported in the finding of large populations of these insects in Vermont during the latter part of August.

The corn ear worm was reported as occurring generally from the Gulf region to Minnesota and from the Atlantic to Utah. In Missouri it is said to be more prevalent than at any time during the past 30 years. In Colorado corn-ear infestation was said to be as high as 100 percent. Throughout the greater part of the country the ear worm was doing serious damage.

The fall armyworm was destructively abundant in the Gulf region from Georgia to Texas.

The codling moth was unusually abundant and destructive in the Ohio River Valley and in the Pacific Northwest.

The Mexican bean beetle was reported for the first time from Orange and Windsor Counties, Vermont, and from Webster County, Mississippi. Damage has been general and serious throughout its previous range.

The pea moth (Laspeyresia nigricana Steph.) has been discovered in the State of Washington, where it occasioned considerable loss in two counties to growers who were raising peas for canning.

The pickle worm again appeared in Connecticut this year. This is its second appearance in the past 34 years.

Heavy damage to sugar beets by the greenhouse leaf tier was reported from Orange County, Calif. The sugar content of the beets in infested fields is so low as to render them hardly worth harvesting.

The satin moth was reported as occurring in Oregon, in the Willamette Valley. This is the first record of the occurrence of this insect in that State.

One of the elm leaf aphids, Tuberculatus ulmifolii Monell, was present in outbreak numbers in Iowa and Nebraska.

Very heavy infestations of crickets in houses located in the vicinity of public dumps were reported from Maine, Massachusetts, and Wisconsin. In the Massachusetts infestation the insects were so numerous as to force the tenants to leave the houses.

The screw worm infestation in the Gulf region, from Florida to Texas, has developed to serious proportions and control campaigns are under way over a large part of the territory.

THE MORE IMPORTANT RECORDS IN CANADA FOR AUGUST AND SEPTEMBER 1934

Grasshopper migration flights were practically over in Saskatchewan by the beginning of August. The recorded flights this year were fewer, smaller, and less far-reaching than in 1933. In general, grasshoppers were notably less abundant than during the same period last year. Damage to maturing crops over the infested area, although serious, was materially lighter than in 1933. As drought and high temperatures were extremely favorable to the pest, this definite decrease in the autumn infestation is attributed to the general success of the control campaign. In Manitoba and Alberta warm weather early in August increased grasshopper damage and flights, and oats and barley in certain sections were injured considerably. Later in the month this damage was checked by cool weather. Since the middle of August grasshopper activities have been largely confined to egg laying. Throughout British Columbia where grasshoppers have not been abundant for some years, there are evidences of a general increase that may have serious consequences in interior valleys in 1935.

First-year white grubs are abundant in southern and central Quebec, especially in old sod, with grubs exceeding 500 per square yard in places.

Reports from Quebec, Ontario, and Manitoba indicate that infestation by the Colorado potato beetle is about normal.

In southern Ontario the European corn borer infestation is materially less than in 1933 and damage, in general, is slight. It is probable that thorough clean-up measures in the spring and an increased corn acreage are responsible for the decreases noted.

Adult moths of the corn ear worm have been reported as far more abundant than for several years at points in southern Ontario and southern Quebec. Heavy infestations of the larvae also were noted in sections of these Provinces and in southern Manitoba, and light to moderate local infestations in Saskatchewan and Alberta.

Heavy local outbreaks of aphids occurred on cruciferous crops in southern sections of Ontario, Alberta, and Vancouver Island, British Columbia. Aphids of several species have been extremely abundant on many kinds of plants in the Prairie Provinces. Infestation and damage varied considerably. The apple aphid has caused damage in apple orchards in certain sections of Eastern Canada and in British Columbia.

Some losses to wheat were caused by the wheat stem sawfly in sections of the Prairie Provinces. In Saskatchewan these losses apparently were somewhat larger than average, particularly in heavy soils of drier areas. In the Red River Valley, Manitoba, the wheat stem maggot caused losses ranging from 5 to 15 percent.

A very general infestation of the common red spider mite in southern Alberta resulted in considerable damage to shade trees, garden truck, and bush fruits. This species was a serious pest of small fruits in Ontario and locally in Manitoba. The spruce mite was again very prevalent throughout the Prairie Provinces. Mites of several species were troublesome pests of apple, plum, and pear in parts of the orchard areas of Ontario and British Columbia.

There has been a general increase in the codling moth infestation in Ontario and southern Quebec. The species was exceptionally abundant in the warmer districts of Ontario, where it caused serious damage.

The gray-banded leaf roller is a serious pest in apple orchards of Nova Scotia.

The oriental fruit moth infestation in the Niagara Peninsula, Ontario, was about the same as in 1933. The species survived winter temperatures as low as 23° below zero.

Grape leafhoppers were exceptionally abundant in unsprayed or poorly sprayed vineyards in southern Ontario, where they caused much damage.

The outbreak of the European spruce sawfly continues in the Gaspé Peninsula, Quebec, and the larvae have defoliated much of the white spruce over a large area. Black spruce is less heavily infested, but defoliation of this species also is severe. The sawfly has now been found to be generally distributed in New Brunswick, but up to the present damage in this Province is not severe.

The hemlock looper has appeared in destructive numbers in parts of Nova Scotia and on Anticosti Island.

The red-headed pine sawfly is causing serious damage in many localities in Ontario and Quebec.

The satin moth has been reported in the Peace River district of British Columbia, east of Rolla.

GENERAL FEEDERS

GRASSHOPPERS (Acrididae)

Michigan. R. Hutson (September 20): Grasshoppers are very abundant.

Wisconsin. E. L. Chambers (September 26): A survey of adults just completed in the northern part of the State indicates, as did the egg survey, that another outbreak of grasshoppers, even more serious than this year's, may be expected in 1935 if weather is favorable. Eggs are still being laid and all instars of nymphs are present in woodlands, cranberry bogs, and roadsides.

North Dakota. J. A. Munro (September 22): F. D. Butcher says that the grasshopper situation this month is characterized by a marked decrease in the population of Camnula pellucida Scudd. Occasional evidences of parasitization by Diptera were noticed in the field. In most areas Melanoplus mexicanus Sauss. is the predominating species. Adults of M. differentialis Thos. were observed in Mercer, Oliver, and Morton Counties on September 20 and 21.

Missouri. L. Haseman (September 24): In central Missouri red-legged grasshoppers are fairly common but are doing no damage.

Arkansas. D. Isely (September 24): Grasshoppers (M. differentialis) are very abundant.

Nebraska. M. H. Swenk (September 20): Grasshoppers are moderately abundant.

Kansas. H. R. Bryson (September 26): The grasshopper population is below normal for this time of year. M. differentialis individuals are more difficult to find at Manhattan than for several years past. A report of injury to young alfalfa during the past month was received from Ozawie.

Colorado. G. M. List (September 20): Grasshoppers, since the closing of the poisoning campaign, are only moderately abundant.

O. G. Babcock (August 27): Grasshoppers (M. bivittatus Say) are very numerous on farms between Denver and Fort Collins and Greeley. Thousands of inland gulls are feeding on the hoppers.

Arizona. C. D. Lebert (September 19): Several fields in the Salt River Valley still have moderate infestations of hoppers, both M. mexicanus and M. differentialis. Young hoppers of the third and fourth instars are still present. Lettuce growers are applying poisoned-bran baits.

ARMYWORM (Cirphis unipuncta Haw.)

Missouri. L. Haseman (September 24): The fall brood of the regular armyworm has been doing serious damage to crops from central Missouri south to

the Arkansas line. Some complaints have come from north of the Missouri River, especially from Montgomery County.

WHITE-LINED SPHINX (Sphinx lineata Fab.)

Oklahoma. C. F. Stiles (September 24): Russian-thistles throughout the western part of Oklahoma, and especially the Panhandle area, are being attacked. The armyworms migrate across the wheat fields, defoliating the thistles, but have not damaged the wheat or any of the grass plants. On September 10 they were migrating by thousands from one field to another in Harper and Cimarron Counties.

WHITE GRUBS (Phyllophaga spp.)

Maryland. E. N. Cory (September 26): White grubs, probably P. hirticula Knoch, are very abundant in Ellicott City, where they have destroyed 50 percent of the corn.

Michigan. R. Hutson (September 20): White grubs are very abundant.

GREEN JUNE BEETLE (Cotinis nitida L.)

Indiana. J. J. Davis (October 2): Grubs were reported as abundant in and destructive to lawns at Terre Haute on August 29. During September several correspondents sent in the grub parasite Scolia dubia Say which indicates an abundance of the parasite.

Kentucky. W. A. Price (September 25): Green June beetle larvae have been very abundant in many lawns at Lexington, Winchester, and Versailles.

DESERT JUNE BEETLE (Ochrosidia villosa Burm.)

California. C. S. Morley (September 1): A serious infestation of larvae, which completely destroyed the lawns in a cemetery at Bakersfield, was observed.

JAPANESE BEETLE (Popillia japonica Newm.)

Eastern United States. C. H. Hadley (August): All sections except the extreme northern part of New Jersey are now in the area of continuous distribution. There are increases in lower Cumberland and throughout Cape May County. The area of continuous infestation in Pennsylvania is approximately indicated by such localities as Easton, Allentown, Reading, Honey Brook, Christina, and Oxford. In Delaware infestation extends across the State north of Middletown, and farther south extends west to Vandyke and Kenton and south to Woodside, Magnolia, and Bowers Beach. An increase is noted in all infested sections. In Maryland the area of continuous infestation centers at Elkton and has increased. All Staten Island and the extreme eastern part of Long Island are now included in the area of continuous infestation in New York.

ASIATIC GARDEN BEETLE (Autoserica castanea Arrow)

Eastern United States. H. C. Hallock (August): The area of distribution in Westchester County, N.Y., has shown some increase in 1934. The beetles were recorded at Valhalla this summer for the first time. They had previously been found in the northern part of the county at Ossining, Peekskill, Mount Kisco, and Amawalk. The beetles are generally distributed in Westchester County, although they are much more scattered in the northern part. However, fewer complaints of injury by the adult beetles were received from this county than in 1934, because during the season of actual flight in 1934 there were fewer hot nights than normal, resulting in less feeding in gardens. Bronx County shows little change in abundance. Kings County shows an increase throughout. Nassau County shows some increase, especially in the western half. In northeastern New Jersey the beetle shows increased abundance in the open country. Adults were found at Bound Brook, N.J., in August 1934 for the first time. Observations during the past 7 years indicate that increased losses will probably be caused should it occur farther south, provided there is sufficient rainfall for normal development of the immature stages.

WIREWORMS (Elateridae)

South Carolina. C. O. Bare (August 21): A survey of vegetable plantings at the South Carolina Truck Experiment Station at Charleston showed considerable injury by wireworms. Counts of the injured plants of each crop made on two 480-foot rows gave the following: Cucumbers, 94 out of 753, or 12 percent; cantaloups, 34 out of 1,273, or 3 percent; squash, 1 out of 723, or 0.13 percent; cabbage, 2 out of 2,950, or 0.06 percent. Four percent of the 240 cucumber hills in the two rows were destroyed.

Wisconsin. E. L. Chambers (September 26): Potatoes on low heavy soils with little drainage are being seriously injured by wireworms in Racine, Milwaukee, and Waukesha Counties, according to potato dealers.

North Dakota. J. A. Munro (September 24): A 20-acre plot of potatoes in the vicinity of Saint Thomas is reported as badly infested. In 1932 more than 30 percent of the potatoes from this plot were unmarketable, on account of wireworm injury; in 1933 from 15 to 20 percent were unmarketable; and this year wireworm injury has rendered 75 percent unfit for market.

Missouri. L. Haseman (September 24): At Columbia during the early part of September wireworms were severe on late sweet corn. Larvae are about half grown.

COMMON RED SPIDER (Tetranychus telarius L.)

Colorado. G. M. List (September 20): The dry season has favored the common red spider, which is quite injurious on a number of trees and shrubs. In some instances it has damaged such field crops as beans and corn.

California. C. S. Morley (September 1): This has been one of the worst

seasons ever experienced for red spiders, and the damage was intensified by lack of irrigation. Bakersfield has completed the spraying of 23,051 shade trees.

CEREAL AND FORAGE - CROP INSECTS

WHEAT

HESSIAN FLY (Phytophaga destructor Say)

General. P. N. Annand (September 18): The hessian fly is in general at a low ebb in the main winter-wheat regions. Drought has largely kept this insect in check. Areas in which scattered fields suffered more or less injury this year are southeastern Kansas, southern Missouri, east-central Indiana, middle Tennessee, northern Ohio, south-central Pennsylvania, and central North Carolina. With weather conditions favorable to the fly, moderate to severe infestations may develop this fall in these areas. In the remainder of the winter-wheat belt, comprising Nebraska, northern and middle Kansas, northern Missouri, all of Illinois, western and south-eastern Indiana, southern Ohio, western, northern, and eastern Pennsylvania, Maryland, Delaware, and Virginia, there appears to be little prospect of serious general infestation this fall.

The following table gives the percentage of infestation found by the survey made at harvest time:

Area	:Average :infestation:	:	Area	:Average :infestation:
Nebraska	:	::	Indiana	:
Southwest	: 1	::	Northwest	: 5
South-central	: 1	::	Northeast	: 16
Southeast	: 1	::	Central	: 7
	:	::	East-central	: 30
Kansas	:	::	Southwest	: 8
Northwest	: 1	::	Southeast	: 4
North-central	: 2	::		:
South-central	: 1	::	Ohio	:
Northeast	: 2	::	Northern	: 21
Southeast	: 10	::	Southern	: 9
	:	::		:
Oklahoma	:	::	Kentucky	:
North-central	: 1	::	Northwest	: 7
Northeast	: 2	::	Southwest	: 10
	:	::	North-central	: 7

Cont'd.

Area	:Average :infestation:	:	Area	:Average :infestation
Missouri	:	::	Tennessee	:
Southwest	: 14	::	Middle	: 17
West-central	: 11	::		:
Northwest	: 2	::	Pennsylvania	:
Southeast	: 21	::	North-central	: 7
East-central	: 10	::	South-central	: 16
	:	::	Southwest	: 8
Illinois	:	::	Southeast	: 7
N. and w. central	: 1	::		:
Southeastern	: 8	::	Maryland	:
Southern	: 1	::	North-central	: 6
	:	::	Eastern Shore	: 1
Michigan	:	::		:
Southwest	: 3	::	Delaware	:
	:	::	State	: 1
Virginia	:	::		:
North	: 5	::	North Carolina	:
East-central	: 6	::	Central	: 16
Southwest	: 11	::		:

Ohio. T. H. Parks (September 25): Larvae and puparia are present in more than usual numbers on volunteer wheat. We look for a heavy fall emergence and infestation of early sowed wheat in the northern half of the State.

Missouri. L. Haseman (September 24): Earlier observations indicate that the heat of midsummer proved very destructive to flaxseeds.

SAY'S STINK BUG (Chlorochroa sayi Stahl)

Colorado. G. M. List (September 20): Say's stink bug has been quite numerous during much of the season. Barley and wheat were injured considerably just at filling time in the Pueblo and El Paso County sections. In Pueblo and Denver vicinities the bugs damaged truck crops and, in a few instances, sugar beets. Near Denver one gardener lost almost his entire crop of garden beets and a 3-acre field of early cabbage.

CORN

CHINCH BUG (Blissus leucopterus Say)

Vermont. H. L. Bailey (August 29): Intensive infestations were found in millet at Middlesex, in Washington County, on August 20, and at Brainerd, Orange County, in corn on August 23.

Ohio. T. H. Parks (September 25): A fall survey now being conducted reveals that chinch bugs are much more abundant than last fall and late sweet corn is badly infested. Complaints are being received from counties south of the area where injury occurred in June and July.

Indiana. J. J. Davis (October 2): The chinch bug situation is serious. Recent surveys indicate a greater abundance and wider distribution than a year ago.

Illinois. W. P. Flint (September 20): The wet weather late in August and early in September has had a somewhat detrimental effect on chinch bugs. The white-fungus disease has been very abundant and has killed a considerable number of bugs. However, nearly as many bugs will go into winter quarters as did so in the fall of 1933. Many bugs are already in hibernation at Urbana.

Kentucky. W. A. Price (September 25): Chinch bugs are very abundant.

Missouri. L. Haseman (September 24): Recent observations indicate that the chinch bug is very abundant only in scattered fields. It is less abundant than we expected.

Nebraska. M. H. Swenk (September 20): The chinch bug is moderately abundant.

Kansas. H. R. Bryson (September 26): Chinch bugs are moderately abundant at Manhattan and in the eastern part of the State. The adults may be easily found in crabgrass and other wild grasses along roadsides, fence rows, and in fields. The population is below the usual number.

CORN LANTERN FLY (Peregrinus maidis Ashm.)

Mississippi. C. Lyle (September 19): Medium damage to corn was reported from Aberdeen, in Monroe County, on September 4, and specimens were sent in on September 18 from Jackson, in Hinds County, with a report that the insect was abundant on pop corn.

CORN EAR WORM (Heliothis obsoleta Fab.)

North Carolina. W. A. Thomas (September 8): Late corn following potatoes in this section (Stonewall) has been almost destroyed. Stalk, foliage, tassel, and ear have been attacked. Some of the growers are much concerned, as this is the source of grain for most of their farm animals. The growers estimate that the yield will range from nothing to 4 barrels per acre; 20 barrels per acre being about the normal yield on these lands.

South Carolina. F. Sherman (September 19): The corn ear worm is very abundant on corn but nearby tomato fruits show little if any infestation.

Ohio. T. H. Parks (September 25): The corn ear worm is very abundant on sweet and field corn. The infestation follows one of the most severe winters on record, with February temperatures dropping to 15 to 20° below zero in northern Ohio where worms are now abundant. This supports the theory that

these moths migrate long distances.

Ohio. N. F. Howard (September 22): Late sweet corn in the vicinity of Columbus is very heavily infested. Every ear examined had 1 or 2 worms on the tip, an inch or two of which had been destroyed, as well as 1 worm lower down which had entered through the husks on the side. Considering the unsightliness of the ears, it is believed that most of the corn in the fields was unmarketable. I have received report that the insect is very injurious to chrysanthemums and tomatoes in a greenhouse in the vicinity of Dayton.

Indiana. J. J. Davis (October 2): The corn ear worm is more abundant throughout the State than it has been for a number of years. It is heavily infesting corn and tomatoes. One report of abundance in soybeans was received.

Illinois. W. P. Flint (September): The corn ear worm is more abundant than it has been at any time during the past 5 years. It has very seriously damaged field corn, destroying probably 7 or 8 percent of the kernels on most of the ears. It is also feeding extensively on the foliage of late soybeans and on the pods of late beans.

Kentucky. W. A. Price (September 25): The corn ear worm continues to be very destructive to tomatoes, beans, and alfalfa.

Michigan. R. Hutson (September 20): The corn ear worm is moderately abundant.

Wisconsin. E. L. Chambers (September 26): The second and possibly a third brood of the corn ear worm attacked both sweet and field corn. This is the worst infestation ever recorded in Wisconsin. In some fields the infestation is 50 percent in field corn and even higher in sweet corn.

Minnesota. A. G. Ruggles and C. E. Mickel (September 25): The corn ear worm is very abundant on very late sweet corn in parts of the State. Adults were flying on September 7.

Missouri. L. Haseman (September 24): The corn ear worm outbreak is the worst in 30 years. Late broods are very large. Owing to shortage of corn ears the worms are turning to alfalfa and soybeans, doing serious damage to these crops over much of the State.

Nebraska. M. H. Swenk (September 20): The corn ear worm is very abundant.

Mississippi. C. Lyle and assistants (September): The corn ear worm is very abundant on corn and tomatoes in Lauderdale, Bolivar, Lowndes, and Monroe Counties.

Colorado. G. M. List (September 20): The corn ear worm has been unusually numerous in all sections where corn is grown. The infestation in most localities will be 100 percent. The first brood attacked the tassels of the early sweet corn, much of which was so seriously injured that it was cut and fed to livestock.

Utah. G. F. Knowlton (September 8): Corn ear worms are damaging from 3 to 35 percent of the tomato fruits in fields in Davis and Weber Counties. The high infestation is slowing down canning operations in factories throughout Utah.

BUMBLE FLOWER BEETLE (Euphoria inda L.)

Colorado. G. M. List (September 20): The bumble flower beetle has been reported from a number of localities as injuring corn by feeding on the tips of the ears.

ALFALFA

ALFALFA WEEVIL (Hypera postica Gyll.)

California. A. E. Michelbacher (September 22): The alfalfa weevil is rather abundant in some fields around Niles and Pleasanton. On July 23 a single dipterous internal parasite of the larva was found at Niles. No further search was made for this parasite until September 14, when weevil larvae were brought into the laboratory. About 10 percent of those large enough to spin cocoons were infested with the parasite. As yet the parasite has not been reared, although a number are leaving the parasitized larvae and are pupating.

GARDEN WEBWORM (Loxostege similalis Guen.)

Ohio. T. H. Parks (September 25): Larvae of the alfalfa webworm, together with injured alfalfa foliage, were received with the statement that they were severely injuring alfalfa in several fields in Greene County.

Indiana. J. J. Davis (October 2): The garden webworm was reported damaging alfalfa at Portland on August 24.

Illinois. W. P. Flint (September): During the latter part of August the alfalfa webworm was extremely destructive throughout the State. It has been much less abundant during September.

Missouri. L. Haseman (September 24): The late brood of the alfalfa webworm has done a good deal of damage to the last cutting of alfalfa in central Missouri. Moths are on the wing in moderate numbers.

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli Guen.)

Illinois. W. P. Flint (September): The yellow-striped armyworm has been very abundant and destructive over most of the State during the past month. The principal injury has been to newly sown alfalfa. It has also damaged soybeans and some truck crops considerably. Parasitization has been rather low.

BEAN THRIPS (Heliothrips fasciatus Perg.)

California. A. E. Michelbacher (September 22): On September 7 the bean thrips was present in countless numbers in the alfalfa fields about Vernalis. A week later they were still very abundant but much reduced in numbers. A similar condition was noted a year ago.

SOYBEANS AND VELVETBEANS

FALL ARMYWORM (Laphygma frugiperda S. and A.)

Georgia. O. I. Snapp (September 22): The fall armyworm destroyed 25 acres of soybeans at Fort Valley.

Florida. J. R. Watson (September 24): The fall armyworm stripped the cover crops from many groves in Lake and Polk Counties in the early part of the month.

Arkansas. D. Isely (September 24): An outbreak of the fall armyworm has been reported from Marion, Johnson, and Washington Counties.

Mississippi. C. Lyle (September 19): A very light infestation on pop corn was reported from Jackson, in Hinds County, on September 18.

Texas. F. L. Thomas (September 16): Millions of tiny worms streaming across the tracks were able to stall a ponderous freight train near Estelline, in Hall County. They were also very abundant at Crystal City, Zavala County.

S. E. Jones (September 7): In Crystal City fall armyworms are causing much damage to hegari.

VELVETBEAN CATERPILLAR (Anticarsia gemmatilis Hbn.)

Florida. J. R. Watson (September 24): The velvetbean caterpillar has thoroughly ragged most velvetbean fields in Florida.

Louisiana. W. E. Hinds (August 29): Soybean caterpillars have been seen only in a few instances and then not in numbers to strip the foliage, even on their favorite varieties. No serious damage is expected. Some stripping started at Jeanerette about August 15, also around New Iberia. No eggs were found at that time.

GREEN CLOVER WORM (Plathypena scabra Fab.)

North Carolina. W. A. Thomas (September 22): A light infestation was observed in soybeans in Pamlico and Columbus Counties on September 8. No appreciable damage was being done. Specimens of this insect and what appeared to be the fall armyworm (Laphygma frugiperda S. and A.) are associated in defoliating soybeans grown for seed.

South Carolina. W. C. Nettles (September 19): The green clover worm is reported to be defoliating soybeans in at least one locality in the eastern part of Dorchester County.

FRUIT INSECTS

APPLE

CODLING MOTH (Carpocapsa pomonella L.)

South Carolina. O. L. Cartwright (September 19): Injury to apples by the third brood is very prevalent at Clemson College.

Ohio. T. H. Parks (September 25): The codling moth is very serious again in Lawrence County, in southern Ohio. Seven cover sprays have failed to control it; and worm entrances were abundant during August and September owing to a rather heavy third brood of larvae. Elsewhere in the State the insect is not so numerous but populations are increasing, even where extra early sprays had been applied.

Kentucky. W. A. Price (September 25): The codling moth is very abundant.

Michigan. R. Hutson (September 20): The codling moth is moderately abundant.

Missouri. L. Haseman (September 24): Late worms are scattered over the entire State. A few moths are still emerging and young worms are entering fruit. Less abundant than for several years.

Nebraska. M. H. Swenk (September 20): The codling moth is moderately abundant.

Kansas. H. R. Bryson (September 26): On August 28 workers in northeastern Kansas reported an overlapping of second-brood and third-brood moths. Moths were abundant but damage was comparatively light.

Texas. W. L. Owen (September 8): Fewer wormy apples than ever before are reported from the vicinity of Fort Davis. The owner of a large commercial orchard estimates that not more than one apple in 500 is infested.

Washington. E. J. Newcomer (September 21): Continued hot weather up to September 6, together with the early season, resulted in an unusually large third brood in Yakima Valley. The peak of this brood came the last week of August, and began to decline noticeably early in September, although the weather remained hot. This caused a heavy attack by late worms, which in many cases more than offset the earlier light infestation. Some orchards were sprayed 10 or 12 times during the season.

FLAT-HEADED APPLE TREE BORER (Chrysobothris femorata Oliv.)

Indiana. J. J. Davis (October 2): The flat-headed borer has been unusually abundant in and destructive to apple and maple, especially apple, in the northern half of the State.

Nebraska. M. H. Swenk (September 20): The flat-headed apple tree borer has been abundant in young apple trees in Fillmore County.

PEACH

ORIENTAL FRUIT MOTH (Grapholitha molesta Busck)

Connecticut. P. Garman (September 24): In New Haven County larvae remained in peach twigs until late and will hibernate without entering fruit. There is some increase in infestation in apples and quinces this year, but it has not been particularly marked.

South Carolina. O. L. Cartwright (September 19): Adults are being taken in bait pans in apple orchards at Clemson College. Peach fruits are gone.

Georgia. O. I. Snapp (September 20): Some larvae have already entered hibernation in Fort Valley.

Ohio. T. H. Parks (September 25): Injury from larvae in peaches and quinces is much less severe than during former years.

PEACH BORER (Agria exitiosa Say)

Georgia. O. I. Snapp (September 20): The peak of moth emergence in Fort Valley occurred on September 16, which is about normal. The infestation is of average intensity. The dipterous parasite Anthrax lateralis Say is beginning to emerge.

PLUM CURCULIO (Conotrachelus nenuphar Hbst.)

Georgia. O. I. Snapp (September 20): Some growers in Fort Valley have made after-harvest applications of arsenical dust to reduce the number of adults before they enter hibernation. The infestation is heavier than that of an average year. The dipterous parasite Myiophasia globosa Towns. was fairly abundant this year, many adults being on wing about August 27.

SAN JOSE SCALE (Aspidiotus perniciosus Comst.)

Georgia. O. I. Snapp (September 20): The San Jose scale increased rapidly on peach trees in Fort Valley during September. The infestation is now fairly heavy in a number of orchards. A summer application of oil emulsion has been used in several orchards to hold the scale in check until the dormant spraying season.

GRAPE

GRAPE LEAFHOPPER (Erythroneura comes Say)

Nebraska. M. H. Swenk (September 21): Reports of attack by the grape

leafhopper on grape and woodbine vines continued to be received up to September 1.

Colorado. G. M. List (September 20): The grape leafhopper has been very abundant on grape and woodbine. Many of the latter, where grown for ornamental purposes, are nearly defoliated.

RED-BANDED THRIPS (Selenothrips rubrocinctus Giard)

Florida. J. R. Watson (September 24): Grapes that had been severely attacked by the red-banded thrips were received from West Palm Beach. The thrips caused a russetting of the rind very similar to their work on guavas.

PECAN

FALL WEBWORM (Hyphantria cunea Drury)

North and South Carolina. W. A. Thomas (September 15): The second generation is much more numerous along the Coastal Plain on pecan, persimmon, and forest trees than at any time during the past 10 years. Hardly a pecan tree has escaped injury, and many are already completely defoliated. In some instances, the green husks on the nuts have been partly eaten off.

Mississippi. D. W. Grimes (September 20): Fall webworms are general around Durant, where the injury to pecan ranges from moderate to severe.

Louisiana. T. E. Snyder (September 7): The fall webworm is quite abundant on persimmon trees between New Orleans and Alexandria.

PECAN WEEVIL (Curculio caryae Horn)

Georgia. T. L. Bissell (September 26): The pecan weevil began laying eggs about September 2 at Milner, and small numbers were still active on September 25. Weevils have been more abundant than in any year since 1930.

CITRUS

GREEN CITRUS APHID (Aphis spiraecola Patch)

Puerto Rico. G. N. Wolcott (August 13): Citrus shoots, the leaves of which have been curled by the green citrus aphid, were collected yesterday near Comerio. This insect seems to be increasingly common and its injury is noted widely, not only in the recognized citrus districts, but also, as in the present instance, miles from the nearest known commercial grove.

CITRUS WHITEFLY (Dialeurodes citri Riley and How.)

- Florida. J. R. Watson (September 24): The citrus whitefly is very abundant. Heavy flight of adults now noted in northern Florida.
- Georgia. O. I. Snapp (September 20): As usual, this insect is very abundant in Fort Valley and is causing considerable damage to ornamental plants.
- Alabama. J. M. Robinson (September 21): The whitefly is more abundant over the State than it has been in years. The general infestation might be called an outbreak.
- Mississippi. G. L. Bond (September 18): Moderately abundant in Jackson County. A few heavy infestations have been noticed recently and the whitefly is present on most citrus hedge plants.

COTTONY-CUSHION SCALE (Icerya purchasi Mask.)

- Puerto Rico. G. N. Wolcott (September 20): Since the initial outbreak of the cottony-cushion scale in San Juan and the Bayamon citrus district in 1932, no new records of its dispersion in Puerto Rico had been received up to a few weeks ago. Late this spring one new occurrence was noted near Vega Baja, and more recently another has been reported at some distance from the first, both of these presumably being due to natural dispersion, as they are west or southwest of the main areas of infestation. Within the last few days the scale has been reported in a small grove at Humacao, in the eastern part of the Island, undoubtedly due to the bringing in of infested trees and not to natural factors. In the main areas of infestation the scale has not been abundant this spring and a survey made on September 18 indicated that it was very scarce generally. In one instance, an infestation has entirely disappeared, and in most instances only a few scattered individuals can be found. Wherever small mass infestations still exist, one can find traces of the Australian ladybeetle (Rodolia cardinalis Muls.), and because of recent rainy weather over half of the scales have been killed by the fungus Spicaria javanica.

FULLER'S ROSE BEETLE (Asynonychus godmani Crotch)

- Alabama. H. P. Loding (September 28): Fuller's rose beetles are becoming increasingly abundant in Satsuma orange groves at Mobile, where they are damaging the foliage.

CITRUS RUST MITE (Phyllocoptes oleivorus Ashm.)

- Florida. J. R. Watson (September 24): Dry weather during the last few days of August and the first of September caused an increased number of rust mites in the orange groves for this time of the year.

FIG

THREE-LINED FIG BORER (Ptychodes trilineatus L.)

Alabama. H. P. Loding (September 28): Many old fig trees in Mobile have been killed this year by the larvae. The infestation is general.

Louisiana. W. E. Hinds (August 29): The fig borer has caused a number of complaints, especially in the area about Opelousas. Larvae of all sizes are working in the branches.

COCONUT

A RHINOCEROS BEETLE (Strategus quadriveatus Beauv.)

Puerto Rico. G. N. Wolcott (September 11): Within the last few weeks three complaints of damage to palm trees caused by this beetle have been received, two from the coast, Loiza and Quebradillas, and one from the mountains, at Aibonito, where ornamental palms were attacked. Presumably this is one result of the hurricane of San Ciprian 2 years ago, for the coconut palms destroyed at that time (in some instances 90 percent of the trees in extensive groves) require almost a year before becoming sufficiently rotten to furnish suitable food for the immature stages of the beetles, and the development of the grubs requires another year, which brings an outbreak of the beetles 2 years after the hurricane.

T R U C K - C R O P I N S E C T S

BLISTER BEETLES (Meloidae)

Kentucky. W. A. Price (September 25): Blister beetles are common and destructive generally over the State, feeding on late potatoes, cabbage, tomatoes, and dahlias.

North Dakota. J. A. Munro (September 22): The State Forester reported that Chinese elm trees in New Salem were defoliated by the ash-gray blister beetle (Macrobasis unicolor Kby.) during the past season.

F. D. Butcher observed this blister beetle attacking Chinese elm at Dickinson in 1933.

FALSE CHINCH BUG (Nysius ericae Schill.)

Wisconsin. E. L. Chambers (September 26): The false chinch bug has been unusually abundant in the southern half of the State this summer and has been damaging strawberries.

POTATO AND TOMATO

A PYRALID (Pachyzancla periusalis Walk.)

Georgia. T. L. Bissell (September 1): Larvae have been noted since July 27 at the Georgia Experiment Station on tomato plants growing thickly in pots in the greenhouse and just outside. By August 16 they had spread to tomato plants in an open hotbed. Today I found a few larvae on a tomato plant in the garden near the greenhouse. Eggplants in this garden and in a distant field are heavily infested. Tomatoes in this field are free. A few larvae were observed on horsenettle near eggplants.

A MIRID (Engytatus geniculatus Reut.)

California. H. J. Ryan (August 30): A plant bug identified as E. geniculatus was found attacking tomato plants on several properties in the San Fernando Valley. This was first taken in southern California in Orange County in 1931.

LEAF-FOOTED BUG (Leptoglossus phyllorvus L.)

North Carolina. W. A. Thomas (September 15): The nymphs are very abundant on potato and tomato in some fields near Chadbourn. When large numbers attack a potato stalk they cause it to wilt down in one day. The tops of some plants have already been killed.

Georgia. T. L. Bissell (September 26): This bug is slightly more abundant this summer than usual at Experiment. Adults and young have been found on elderberry, cotton, Cephalanthus, cowpeas, and jimsonweed. L. oppositus Say also was observed on cowpeas.

TOMATO PSYLLID (Paratrioza cockerelli Sulc.)

Utah. G. F. Knowlton (September 5): Potato psyllids have been abundant enough to cause damage in some fields in various parts of northern Utah.

Colorado. G. M. List (September 20): The tomato psyllid has been moderately abundant on potatoes and tomatoes in a number of localities. In Mesa County, where the injury to early potatoes is usually quite severe, the infestation was not as heavy as during the past two seasons. Untreated early potatoes in Weld and Morgan Counties suffered a loss of probably 20 percent. Late potatoes in these sections are showing some injury, and there will be some loss in a number of other localities. The infestation on tomatoes in northern Colorado has been rather severe, the crop being materially reduced and the quality much lowered.

BEANS

MEXICAN BEAN BEETLE (Epilachna corrupta Muls.)

Vermont. H. L. Bailey (August 29): Mexican bean beetle moderately abundant. Reported for the first time in Orange and Windsor Counties.

Ohio. T. H. Parks (September 25): Injury has been very severe in many localities, including the lakeshore area.

Indiana. J. J. Davis (October 2): The Mexican bean beetle was abundant on beans at Indianapolis and Merom early in September. About the middle of September we observed soybeans near Greencastle heavily infested and there were no garden beans nearby.

Illinois. W. P. Flint (September): The Mexican bean beetle has been more abundant throughout the east-central part of the State than in 1933.

Alabama. J. M. Robinson (September 21): Mexican bean beetles have been very abundant at Auburn and in the central and northern parts of the State throughout the season.

Mississippi. C. Lyle and assistants (September 19): Specimens of the Mexican bean beetle were sent to this office on August 24 from Webster County for the first time. They were reported as seriously injuring garden beans. The beetle has also been reported as very abundant in the eastern half of Lowndes and Monroe Counties and at Hattiesburg, in Forrest County.

BANDED CUCUMBER BEETLE (Diabrotica balteata Lec.)

Alabama. J. M. Robinson (September 21): The banded bean beetle is more abundant in central and southern Alabama than it has been during the past 6 years.

PEAS

PEA MOTH (Laspeyresia nigricana Steph.)

Washington. D. J. Caffrey (September 29): Specimens of lepidopterous larvae were collected on July 14 by J. W. Stanton, of Bellingham, who states that this insect has caused the farmers of the Bellingham district and Skagit County a considerable loss this year in peas grown for canning. (Det. by C. Heinrich)

CABBAGE

IMPORTED CABBAGE WORM (Ascia rapae L.)

Ohio. T. H. Parks (September 25): Larvae of the imported cabbage worm have seriously injured cabbage.

Wisconsin. E. L. Chambers (September 26): More damage from cabbage worms has been experienced in the southeastern part of the State this fall than for many years. Many fields were injured so severely that they could not meet standard market requirements in Dane County.

CABBAGE WEBWORM (Hellula undalis Fab.)

North Carolina. W. A. Thomas (September 20): The cabbage webworm is still one of the principal limiting factors in obtaining a stand of collards and related plants in the Chadbourn area at this season of the year. On larger plants the larvae bore into the stalks and leaf petioles, causing the buds to die and weakening the leaf stems, causing them to break off.

CROSS-STRIPED CABBAGE WORM (Evergestis rimosalis Guen.)

North Carolina. W. A. Thomas (September): Larvae of the cross-striped cabbage worm are much more numerous on collards in the Chadbourn district this year than usual. Ordinarily an occasional specimen is seen, but this season they are almost as abundant in some fields as is the common cabbage worm.

CABBAGE LOOPER (Autographa brassicae Riley)

Missouri. L. Haseman (September 24): Cabbage loopers are more abundant and more destructive to late cabbage than I have ever seen them.

HARLEQUIN BUG (Murgantia histrionica Hahn)

North Carolina. W. A. Thomas (September 20): The harlequin cabbage bug continues to be a major pest of collards in home gardens of the Chadbourn area. In some gardens most of this crop has already been killed.

Iowa. H. E. Jaques (September 22): The harlequin bug is making its first appearance for the season in southeastern Iowa. Occasional specimens have been taken.

Kansas. H. R. Bryson (August 28): The harlequin bug is reported to be quite abundant on remnant cabbage plants in gardens in northeastern Kansas. These bugs were observed feeding on turnip at Manhattan.

California. D. J. Caffrey (October 4): Living specimens of the harlequin bug were received from Decoto, Alameda County, where the insect was seriously damaging turnips and squash.

MELONS

FICKLE WORM (Diaphania nitidalis Stoll.)

Connecticut. W. E. Britton (September 24): Larvae were received from Guilford on September 5, in summer crookneck squash. In 1931 this

insect occurred at several points in Connecticut near the coast. In the past 34 years 1931 and 1934 have been the only two seasons when the insect has been observed by members of the staff or brought to the attention of the entomology department.

South Carolina. W. J. Reid, Jr. (September 24): D. hyalinata L. and D. nitidalis are as usual very destructive to fall plantings of cucurbits in the Charleston area. As a result, local growers have practically discontinued attempts to grow cucurbits during the fall months. Larvae of both species were first observed this season feeding in small numbers on the remains of a spring crop of squash on July 10. No signs of the insects had been noted on this planting earlier. They had appeared in an experimental fall planting of cucurbits at the South Carolina Truck Experiment Station on September 7, 10 days after the plants came up. At that time, 29 percent of an acre planting of squash, 8 percent of a half-acre planting of cucumbers, and 2 percent of a half-acre planting of cantaloups were infested with the two species. By September 20 the infestation had increased as follows: Squash, 98 percent infested plants; cucumbers, 96 percent; and cantaloups, 66 percent. The squash showed an average of 8.2 worms per plant, the cucumbers 5.6, and the cantaloups 1.2. These three crops are of the same age. By September 24, when the fruit was beginning to appear, many of the squash plants were dying as a result of the worm feeding.

MELON APHID (Aphis gossypii Glov.)

Kansas. H. R. Bryson (September 26): Melon aphids were reported to be injurious in late melons and cucumbers at Manhattan and in other localities.

Mississippi. C. Lyle (September 19): A heavy infestation on watermelon vines at Jackson, in Hinds County, was reported on August 24. An infestation at State College has also been reported.

SQUASH

SQUASH BUG (Anasa tristis DeG.)

Maryland. E. N. Cory (September 26): The squash bug has been reported from various parts of the State.

Wisconsin. E. L. Chambers (September): The squash bug has been more abundant than usual all over the State this summer.

Utah. G. F. Knowlton (September 9): Numerous reports of squash bug damage to squash have been received throughout the season from various localities in the State.

STRAWBERRY

STRAWBERRY ROOT APHID (Aphis forbesi Weed)

Colorado. G. M. List (September 20): The strawberry root aphid has seriously damaged several plantings of everbearing strawberries in the eastern part of the State.

PEPPER

A WEEVIL (Collabismodes cubae Boh.)

Florida. J. A. Hyslop (September 29): A note on a cryptorhynchid weevil, Euxenodes sp., attacking peppers in Dade County, Fla., appeared in the Insect Pest Survey Bulletin, vol. 14, no. 1, p. 18, dated March 1934. Recent information has brought out the fact that the specimens in Florida are identical with a Cuban species, E. cubae Boh., now referred to the above genus.

BEETS

GREENHOUSE LEAF TIER (Phlyctaenia rubigalis Guen.)

California. R. E. Campbell and J. C. Elmore (September 5): Three hundred acres of sugar beets in Orange County are heavily infested with the celery leaf tier. Serious damage was first reported on August 16. In many fields the leaves have been skeletonized, leaving little more than the midrib. Feeding continues on the new shoots and on the stems at the crown. The yield in some fields is estimated at 20 tons per acre, but the sugar content is so low that the beets are hardly worth harvesting. With the infestation so heavy, it is doubtful whether additional foliage can be produced and the sugar content increased. Adults are so numerous that they fly up in clouds when disturbed. Larvae are feeding also on pepper plants. It is interesting to note that the infestations occur in the area where 7,000 acres of celery was grown about 20 years ago, the abandonment of which was partly due to damage by the leaf tier. Many parasites were observed.

BEET LEAFHOPPER (Eutettix tenellus Bak.)

Utah. G. F. Knowlton (September 14): Beet leafhoppers were so abundant and active in the foothills 4 miles northwest of Dolomite as to cause annoyance to hunters in the area. The leafhoppers caused irritation to hands and arms by biting. (September 22): Beet leafhoppers are still very abundant in small areas of the northern Utah breeding grounds, in which Russian-thistle and other favored host plants are still in good condition for feeding.

F O R E S T A N D S H A D E - T R E E I N S E C T S

SATIN MOTH (Stilpnotia salicis L.)

Oregon. F. C. Craighead (August): J. A. Beal reports that the satin moth has been found recently doing serious damage to introduced poplar trees, Populus alba, in Oregon. Partly defoliated trees were observed near Gervais, north of Salem, and again farther south near Albany. Old pupal cases were very numerous, hatched egg masses were abundant, and in some instances fully half the foliage had been eaten from the lower part of the tree. This injury was reported by one owner to have been present for 2 or 3 years. Early in July two adults of this species were taken in Portland, so far as known the first authentic record of its occurrence there.

FOREST TENT CATERPILLAR (Malacosoma disstria Hbn.)

Wisconsin. E. L. Chambers (September 26): Large tracts of willow have been defoliated by enormous armies of these caterpillars in the swamp lands of the State. They also attack other deciduous trees.

FALL WEBWORM (Hyphantria cunea Drury)

Colorado. G. M. List (September 20): The fall webworm is quite abundant in a number of mountain valleys. The injury is especially severe on narrowleaf cottonwood. Most of these trees along the Arkansas River, both above and below Salida, have been largely defoliated.

California. E. O. Essig (September 9): Webs are abundant on terminals of young madrona and other trees in Humboldt and Mendocino Counties. This is the most noticeable outbreak ever observed by the writer.

F. H. Wymore (September 20): This pest is very abundant on willow and black walnut trees along streams in the Sacramento Valley.

FLAT-HEADED APPLE TREE BORER (Chrysobothris femorata Oliv.)

Ohio. E. W. Mendenhall (September 15): The flat-headed apple tree borer is abundant in dogwood and maples this year.

Michigan. E. I. McDaniel (September 25): The flat-headed borer was reported from Ypsilanti, Jackson, Ann Arbor, Flint, Marcellus, and Holland last week. In most instances the injury was confined to maples, although various other trees have been attacked.

WALKINGSTICK (Diapheromera femorata Say)

Michigan. E. I. McDaniel (September 25): The walkingstick has appeared in Ogemaw and Iosco Counties. In the vicinity of West Branch and Tawas City red oaks are practically defoliated. The insect occurs on several kinds of trees but confines its feeding entirely to red oaks. It has

been common in this region for the past 5 or 6 years.

ASH

A BARK BEETLE (Leperisinus aculeatus Say)

New Hampshire. E. P. Felt (September 27): Ash timber beetles (L. aculeatus) were so abundant in ash in one locality that they caused considerable annoyance in a dwelling, as the beetles emerged from firewood stored in the cellar.

CARPENTER WORM (Prionoxystus robiniae Peck)

North Dakota. J. A. Munro (September 24): Several reports of infestation, the most interesting of which are on oak at Fargo, Cass County, and on various species of poplar at Mandan, Morton County, have been received.

BEECH

BEECH SCALE (Cryptococcus fagi Baer.)

Connecticut. W. E. Britton (September 20): A moderate infestation of the beech scale occurs on trees near the Mark Twain Library and on private premises northward to Keeney Park in Hartford, a distance of more than a mile.

BIRCH

BIRCH SKELETONIZER (Bucculatrix canadensisella Chamb.)

Massachusetts and New Hampshire. J. V. Schaffner, Jr. (September 24): Serious infestations of the birch leaf skeletonizer are very noticeable in many localities through eastern Massachusetts and southern New Hampshire. Much injury in several towns in the vicinity of Phillips, Maine, was noted on September 16.

BRONZE BIRCH BORER (Agrilus anxius Gory)

Michigan. E. I. McDaniel (September 25): The bronze birch borer has been reported from Muskegon, Holland, Manistee, and Ludington. Trees in these sections have suffered particularly from the drought. Most of the infested trees are on natural stands and are largely mature specimens.

Wisconsin. E. L. Chambers (September): Birch tree plantings throughout the State are heavily infested and many trees are being killed. Cut-leaf birches in open ornamental plantings are rapidly succumbing.

ELM

AN APHID (Tuberculatus ulmifolii Monell)

Iowa. G. C. Decker (August 30): For the past 3 weeks we have received numerous reports and inquiries from all sections of the State relative to the abnormal abundance of elm leaf aphids. Practically all of the elm trees that I have seen throughout the State have the leaves completely covered with honeydew.

Nebraska. M. H. Swenk (August 15-September 20): The outstanding pest of the period here covered was the elm leaf aphid. From August 27 to September 12, from Lancaster County north to Butler, Cuming, Platte, and Boone Counties, and northwest to Rock County, many complaints were received concerning the abundance of this aphid, which produced honeydew in such profusion that it dripped from the leaves continuously, wetting houses, fences, walks, and vegetation under the trees. Motorists, especially, complained that it covered their windshields and cars and attracted great numbers of flies.

FIR

AN APHID (Dreyfusia piceae Ratz.)

Vermont. H. L. Bailey (August 29): The balsam woolly aphid has been reported from Cabot, Mount Holly, and vicinity. A heavy infestation at Warren was observed on August 28. Many trees were dead.

HEMLOCK

A SAWFLY (Tenthredinidae)

Oregon. F. C. Craighead (August): J. A. Baal reports that an undetermined sawfly has recently been defoliating hemlock stands in western Oregon along the Cascade Range. Heavy defoliation of western hemlock occurred over an area of approximately 10,000 acres and lighter infestation covered about 50,000 acres. Feeding for the year is about over and the larvae are rapidly constructing their cocoons. Hymenopterous parasites are busy searching out and parasitizing the cocoons. Occasional sawfly adults are now appearing, and emerging parasites are very abundant. It is not believed that the defoliation this year will result in either heavy or widespread losses.

HICKORY

HICKORY BARK BEETLE (Scolytus quadrispinosus Say)

Connecticut. W. E. Britton (September 24): Specimens from South Lyme were received on September 4, with a statement that several trees have been injured by the hickory bark beetle and show many exit holes in trunks and branches.

Michigan. E. I. McDaniel (September 25): This insect has been particularly destructive for the last 4 or 5 years, and there are very few sound hickory trees left in the State. The attack has been aggravated by the prolonged drought, which has weakened the trees so that they are very susceptible to attack. The most recent outbreak occurred just out of Detroit. Here a number of large hickories in a stand of hardwoods were attacked and practically every tree has died within the last few weeks.

OAK

RED-HUMPED OAK WORM (Symmerista albifrons A. and S.)

Michigan. E. I. McDaniel (September 25): The red-humped oak worm has been sent in from Grayling, and also from the vicinity of Traverse City. In both instances the worms were so thick on the trees that the trees were being practically defoliated. The infestation is rather extensive and covers the area between Grayling and Traverse City. Both red and white oak are attacked.

OAK TWIG PRUNER (Hypernallus villosus Fab.)

Michigan. E. I. McDaniel (September 25): The oak twig pruner has been particularly destructive to red oak and white oak. It is distributed over the State, both in the Upper and Lower Peninsulas. However, the most spectacular work is being done in the vicinity of Grayling, West Branch, Traverse City, and Tawas City. In some places the accumulations of fallen twigs are over 2 feet deep.

TWO-LINED CHESTNUT BORER (Agrilus bilineatus Web.)

New York and New Jersey. E. P. Felt (September 27): The two-lined chestnut borer is extremely abundant in oaks on Long Island, particularly in the vicinity of Manhasset, where many trees are dead or dying, probably due primarily to a series of dry summers and to defoliations by canker worms. The work of this insect was also reported from Upper Montclair, N.J.

OAK PILL GALL (Cincticornia pilulae Walsh)

Connecticut and Pennsylvania. E. P. Felt (September 27): The oak pill gall has been unusually abundant, inquiries coming from Washington and Wilton, Conn., and from Buck Hill Falls, Pa.

PINE

WHITE-PINE WEEVIL (Pissodes strobi Peck)

Ohio. E. W. Mendenhall (September 7): The white-pine weevil is quite injurious on pines in a nursery near Newark.

Michigan. E. I. McDaniel (September 25): The white-pine weevil is estab-

lished in a planting of red pines near Grayling and Central Lake. The planting is from 7 to 11 years old and practically every tree is infested.

A PINE ENGRAVER (Ips calligraphus Germ.)

Michigan. E. I. McDaniel (September 25): The coarse-writing bark beetle (I. calligraphus) has been taken from pine in the upper part of the Lower Peninsula. This infestation follows an attack of sawfly in practically every instance in and about Kalkaska and Grayling. Many jack pines are being killed.

PINE BARK APHID (Pineus strobi Htg.)

Maryland. E. N. Cory (September 24): The pine bark louse is attacking pine trees at Frederick.

PINE SAWFLIES (Neodiprion spp.)

Michigan. E. I. McDaniel (September 25): Outbreaks of the Abbott's sawfly (N. pinetum Nort.) has been reported from various parts of Michigan. It attacks a number of different pines, but so far seems to be more destructive to Norway pine.

Maryland. E. N. Cory (September 20): Larvae of N. pinetum and N. leconti Fitch have been found attacking Mugho pine in Princess Anne County.

PINE LEAF SCALE (Chionaspis pinifoliae Fitch)

Ohio. E. W. Mendenhall (September 27): The pine leaf scale is very abundant on Scotch and Mugho pines and on spruces in nurseries near Lancaster, Fairfield County.

Nebraska. M. H. Swenk (September 20): A Dawson County correspondent reported that spruce trees amply provided with water this summer have been killed by the pine leaf scale.

Utah. G. F. Knowlton (September 15): Native pines along Logan Canyon have been damaged to some extent by heavy infestations. Damage to other conifers was also noted, but usually infestations were less severe on spruce and fir.

SPRUCE

SPRUCE BUDWORM (Harmoloba fumiferana Clem.)

Michigan. E. I. McDaniel (September 25): The spruce budworm is practically all over the Upper Peninsula. Trees suffering from attack are evident from Brimley to Higgins Lake, in the Lower Peninsula. This insect has not confined its activity to spruce but has done considerable damage to jack pine as well.

WALNUT

WALNUT CATERPILLAR (Datana integerrima G. and R.)

Wisconsin. E. L. Chambers (September 26): The walnut caterpillar has been reported as being more serious this fall than usual throughout the southern half of the State.

WILLOW

WILLOW FLEA WEEVIL (Orchestes rufipes Lec.)

Maine. H. B. Peirson (September): The willow flea weevil was reported on August 21 to be very abundant on Salix pentandra.

I N S E C T S A F F E C T I N G G R E E N H O U S E

A N D O R N A M E N T A L P L A N T S

AZALEA

AZALEA SCALE (Eriococcus azaleae Comst.)

Alabama. H. P. Loding (September 28): The azalea mealybug is becoming a major pest on cultivated azaleas at Mobile.

MULBERRY WHITEFLY (Tetraleurodes mori Quaint.)

New York. E. P. Felt (September 27): The mulberry whitefly was quite abundant on azalea at Westbury, L.I.

FUCHSIA

A FLEA BEETLE (Haltica litigata Fall.)

Washington, D.C. C. A. Weigel (September 4): An unusual infestation of H. litigata attacking fuchsia was encountered this week in greenhouses. The plants, of which there were several hundred, are being grown in 6-inch pots. The foliage was almost completely pitted and spotted as a result of the feeding of this beetle. (Det. by H. S. Barber)

GLADIOLUS

GLADIOLUS THRIPS (Taeniothrips gladioli M. and S.)

General. C. F. Doucette (September): The gladiolus thrips has extended its range of distribution during the season and has seriously affected the larger gladiolus-producing sections of Idaho, Montana, Washington, Oregon, and California.

Michigan. E. I. McDaniel (September 25): Despite dry weather, the gladiolus thrips has caused no loss where corms had been treated.

Wisconsin. E. L. Chambers (September 26): The gladiolus thrips, while quite abundant throughout the State on plantings not treated before planting, is less abundant than last year.

Alabama. H. P. Loding (September 28): The gladiolus thrips is appearing in nearly all plantings over Mobile County.

Colorado. G. M. List (September 20): The gladiolus thrips was found in the State last year for the first time. The spread this season seems to have been quite rapid, as the infestation is quite general in most sections of the eastern slope in the State. Many plantings have been so seriously injured that few flowers have been cut.

Washington. R. Latta (September): Only a few minor infestations were found in the Puget Sound district last year, but this year the insect has been reported in numbers from all gladiolus-growing sections of the State, including Spokane, Yakima, and Wenatchee, east of the Cascade Mountains, and throughout the Puget Sound district west of the divide. Considerable damage was reported by many commercial and amateur planters.

Oregon. R. Latta (September): T. gladioli was reported as damaging gladiolus at Medford. This is a new record.

California. M. L. Jones (August 27): The counties of Monterey, Alameda, San Francisco, Santa Cruz, Sacramento, San Mateo, Marin, Sonoma, Napa, and the extreme northern portion of Santa Barbara County were surveyed and the gladiolus thrips was found in each county. Because of the lightness of the infestation in some areas, there is no doubt that several light infestations were missed. However, enough infested properties were found to indicate the distribution in this part of the State. Of the 70 gladiolus plantings examined, 41 were infested.

OLEANDER

POLKA DOT WASP MOTH (Syntomeida epilais Walk.)

Florida. J. R. Watson (September 24): The oleander caterpillar, the larva of the polka dot wasp moth, has appeared in Gainesville. This insect is apparently rapidly spreading northward. It may extend as far north as oleanders can grow out of doors.

ROSE

CURLED ROSE SAWFLY (Emphytus cinctipes Nort.)

Maine. H. B. Peirson (September 14): The curled rose sawfly is completely defoliating roses in places on Mount Desert Island.

I N S E C T S A F F E C T I N G M A N A N D

D O M E S T I C A N I M A L S

MAN

HOUSE CRICKET (Gryllus domesticus L.)

Maine. H. B. Peirson (August 6): A heavy infestation has been reported from Biddeford, where the crickets are invading houses located near a dump. Clothing and house furnishings are being damaged.

Massachusetts. C. T. Brues (October 1): I have observed an epidemic of G. domesticus in a part of Boston where four or five houses are overrun. The tenants moved out on account of the continuous chirping at night. Clothing and rugs were ruined by having holes eaten in them.

J. V. Schaffner, Jr. (September 25): A complaint of crickets in a house at Malden was investigated on September 21. A public dump covering an area about 400 feet in diameter was found, where waste materials from houses and stores are placed. From inquiries made in the vicinity, it was learned that all houses in close proximity to this dump were infested. On the other side of the dump is a small brook and a newly built section. Occupants of houses there were troubled also. The dump is now covered with branches recently trimmed from shade trees. Although but few crickets were noted moving about, hundreds were seen when any of the refuse was moved.

Wisconsin. E. L. Chambers (September 26): Residents of the Humboldt Park section of Milwaukee have experienced a plague of crickets never before known to that city. For many blocks millions of these crickets, apparently hatching in a 6-acre swamp and city dump near the park, invaded homes, destroying clothing, rugs, and food.

PUSS CATERPILLAR (Megalopyge opercularis S. and A.)

Mississippi. C. Lyle (September 19): Specimens have been received recently from Houston, in Chickasaw County, and from Lake, in Scott County, the collectors in each case reporting that severe stings had been inflicted. These caterpillars are abundant at present on a sweetgum tree at State College.

BOXELDER BUG (Leptocoris trivittatus Say)

Indiana. J. J. Davis (October 2): The boxelder bug has been the outstanding shade tree insect in the State. Reports of abundance have come in daily. Although most of the reports have come from the northern half of the State, some have been received from as far south as Aurora, on the eastern border of the State, and from Vincennes on the west.

Wisconsin. E. L. Chambers (September 26): The population has been building up for the past few summers until the infestations in the vicinity of seed-bearing trees almost everywhere in the State are practically unbearable, and many cities and villages are removing the trees, some even attempting to outlaw the boxelder entirely.

California. A. E. Michelbacher (September 22): At Pleasanton on September 14 the boxelder bug was observed congregating by the thousands on a single tree, the trunk and limbs of which were covered with them.

BLACK WIDOW SPIDER (Latrodectus nactans Fab.)

Nebraska. M. H. Swenk (August 15-September 20): During the summer and fall there have been an unusually large number of reports of the hour-glass spider from western Nebraska. They have been especially numerous in Dawes and Box Butte Counties. In the former county, during the period here covered, three persons have been made seriously ill because of the bites.

Colorado. G. M. List (September 20): Inquiries in regard to the black widow spider have been much more numerous than usual. This may be due partly to the publicity given the spider by various newspapers; however, our own findings indicate that it is much more numerous than usual.

CATTLE

SCREW WORMS (Cochliomyia spp.)

Florida. J. R. Watson (September 24): The screw worm infestation continues to grow in severity, with heavy losses to hogs and cattle. One or two cases have been reported on man. Forty counties are said to be infested, but the northern part of the State is more seriously affected than the southern part.

Georgia. T. L. Bissell (September 26): Numerous cases of infestation of wounds have been found at the experiment station and in Spalding County in September. Mules, hogs, and cattle have been injured. The insect has not heretofore been recognized in this locality.

Alabama. J. M. Robinson (September 21): Central and southern Alabama are moderately infested.

Mississippi. G. L. Bond (September 18): Southern Mississippi is experiencing the worst outbreak this State has ever known. This insect has caused a loss of about 50 percent of the sheep, along with many hogs, cattle, and other animals. Besides the injury to domestic animals, several infestations of human beings have been reported.

K. L. Cockerham (September 3): Reports of severe injury to livestock along the Mississippi coastal plains have been numerous for the past several weeks. Sheep are reported to be more severely attacked than any other livestock.

HORN FLY (Haematobia irritans L.)

Missouri. L. Hasenan (September 24): Horn flies have been very abundant and very annoying to cattle during the month.

Colorado. O. G. Babcock (August 27): Horn flies will average about 150 per dairy cow in the valley about Del Norte. They are not quite so numerous about Denver, Berthoud, Longmont, and Fort Collins.

POULTRY

POULTRY MITE (Dermanyssus gallinae L.)

Colorado. O. G. Babcock (August 27): The poultry mite is quite numerous about Del Norte, Fort Collins, and Berthoud, wherever roosts have not been treated.

FOWL TICK (Argas miniatus Koch)

Georgia. W. E. Dove (September 14): A poultry house on a farm in Effingham County was found heavily infested with fowl ticks. As this is the first report of the occurrence of fowl ticks in Georgia, and as the infestation seemed to be local, an attempt is being made to eradicate it. Efforts are being made to determine whether the pest occurs elsewhere in the county.

MONARCH BUTTERFLY (Danaus menippe Fab.)

Maryland. E. N. Cory (October 5): Yesterday I went to Piney Point and marked with a green dye possibly 200 stragglers from the main migratory horde. The main body of the butterflies left Piney Point on the morning of October 2 at about 10 o'clock.

INSECT PEST SURVEY BULLETIN

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THE MORE IMPORTANT RECORDS FOR OCTOBER 1934

Heavy migrations of the beet webworm occurred during the early part of the month in Nebraska and Kansas. The migrating worms were so numerous that when their path led across a railroad they interfered with the movement of freight trains. They did very serious damage to a variety of crops in their migration.

The Japanese beetle was found this year in St. Louis, Mo., Indianapolis, Ind., and Charlottesville, Va.

In general, hessian fly infestations in the States where surveys have been made were below normal. In Kansas, however, infestations seemed heavier than last year.

Large numbers of chinch bugs were entering winter quarters in Illinois and Iowa.

The European corn borer has been reported as now occupying the entire strip of coast from Maine to Cape Charles, on the Eastern Shore of Virginia.

The corn ear worm was reported as generally abundant and destructive throughout the greater part of the country. During October it was extremely destructive to tomato fruit in Utah and California.

The leafhopper Cicadula maidis DeLong and Wolcott, a pest of sugarcane in the West Indies, which was found last year in San Bernardino County, Calif., was discovered this October in Los Angeles County. It is now known to be present in the eight southern counties of California from Kern and Santa Barbara to the Mexican border.

Serious damage to soybeans by the velvetbean caterpillar was reported from Louisiana, North Carolina, and South Carolina.

The flat-headed apple tree borer was reported as seriously damaging fruit and shade trees in Kansas and Illinois.

A bostrichid beetle, Stephanopachys pacificus Csy., was reported for the first time as a pest of apples in Washington State. The adults were eating holes in the fruit.

A large green June beetle, Cotinis texana Csy., was collected late in September in southern California, apparently the first record of this species from that State.

The southern green stink bug was reported as unusually abundant in the Gulf region from Florida to Louisiana.

The tomato crop in southern California has been severely damaged by the tomato pin worm.

The banded cucumber beetle was quite generally reported in the Gulf region and the South Atlantic States from Mississippi to South Carolina. Reports of considerable damage by this insect were also received from southern California.

The first record of serious damage by the bean looper (Autographa egea Guen.) was received from Orange County, Calif., late in September.

Sugar beets were seriously damaged by curly top throughout Utah and the western slope of Colorado.

Heavy defoliation by a species of Ellopia was observed in the State forest near Warwick, Mass.

Serious and wide-spread screw worm infestations were reported from Gulf and South Atlantic States from Texas to Georgia. Light infestations were reported from Iowa.

J. A. Hyslop calls attention to an interesting note which appears in The Field (Oct. 20, 1934, London), on the collection of the monarch butterfly (Danaus menippe Fab.) in Wales and England this fall. The note indicates that this remarkable migratory butterfly has again succeeded in crossing the Atlantic Ocean. In 1933 more than 30 specimens were seen along the southern coast of England between the first of June and the middle of October.

GENERAL FEEDERS

GRASSHOPPERS (Acrididae)

- Iowa. C. J. Drake (October 31): Grasshoppers increased in numbers in western Iowa during the past summer. In the order of abundance the species are: The lesser migratory locust (Melanoplus mexicanus Sauss.), the differential grasshopper (M. differentialis Thos.), and the two-lined grasshopper (M. bivittatus Say). A little over 260 tons of poisoned bait were used in the control work during the summer.
- Nebraska. M. H. Swenk (October 20): Grasshoppers have been very markedly reduced in numbers during 1934, judging from a survey of the entire State, completed on October 15 and based upon egg-pod counts. The greatest number of eggs in the State seem at present to be west of the 100th meridian, and especially in the North Platte Valley.
- Kansas. H. R. Bryson (October 24): Surveys conducted over the western two-thirds of the State indicate that grasshoppers are scarcer in that area than they have been for several years. Comparatively few eggs were found. One report of injury was received on October 2 from Delia.
- Arizona. C. D. Lebert (October 22): M. mexicanus and M. differentialis are quite abundant in the alfalfa and lettuce fields of the Salt River Valley. A recent count of adult grasshoppers, conducted by the Bureau of Entomology and Plant Quarantine, cooperating with the State Agricultural Commission in Maricopa County, showed that light to moderate infestations still occur in the alfalfa lands. M. mexicanus is abundant in the fields, while the fence rows, where weeds and Johnson grass are rank, harbor M. differentialis. Counts ranging from 1 to 24 adult hoppers per square yard have been made. In some places the nymphs of M. mexicanus are still coming out. An infestation of M. mexicanus, 60 percent of which are still in the nymphal stage, has recently been found on alfalfa at Yuma.
- Utah. G. F. Knowlton (October 18): Grasshoppers are becoming very scarce in northern Utah, although examination of the stomachs of hawks shows that these birds are still finding enough hoppers for good feeding.

MONARCH BUTTERFLY (Danaus menippe Fab.)

- United States. H. T. Fernald (October 23): Migratory flights of the Monarch butterfly were reported as having been seen at Jones' Beach, Long Island, N. Y., working westward along the beach on August 26. Scattered individual specimens were also common in Pennsylvania, Maryland, and Virginia from September 6 to 24, but there were no signs of gathering. No individuals were seen on the road from Richmond southward from September 24 to 27. By October 23 none had been seen in Orlando, Fla.

BEET WEBWORM (Loxostege sticticalis L.)

Nebraska. M. H. Swenk (October 20): There were rather heavy migrations in Frontier County during the first 10 days of October. The worms were present in such great numbers that freight trains moved with difficulty. In one instance they destroyed 45 acres of winter wheat and in a large field of turnips they destroyed the tops. It is unusual for either of these crops to be destroyed by this species. The migration ended about the middle of October.

Kansas. H. R. Bryson (October 25): Larvae caused considerable injury in several localities in western Kansas in September. They were abundant on Russian thistle in fence rows and along roadsides. After defoliating the thistles, the larvae moved armlike into adjacent fields. Injuries to broomcorn leaves and alfalfa were reported. A survey showed the pest to be generally distributed over the western third of the State. This pest was more abundant and more widely distributed this year than it has been during any previous year. It was the outstanding insect of the month of September.

GARDEN WEBWORM (Loxostege similalis Guen.)

Kansas. H. R. Bryson (September): Moths of the garden webworm have been very abundant at lights this month, but the larvae have not been taken in the field.

ARMYWORMS (Noctuidae)

Missouri. L. Haseman (October 29): The fall brood of the regular armyworm (Cirphis unipuncta Haw.) appeared in destructive numbers over a considerable part of the State. The larvae continued to feed during the early part of October and moths have been on the wing throughout the month. At Columbia they are present at this time in swarms around fermenting fruits and cider mills. Associated with the regular armyworm there was a fairly large outbreak of the fall armyworm (Laphygma frugiperda S. and A.) extending at least as far north as Columbia. The moths are now on the wing and are appearing at the rate of 1 fall armyworm moth to 10 moths of the regular armyworm. Along with the two armyworms, there has also been a considerable number of cutworms, apparently mostly the so-called greasy cutworm (Agrotis ypsilon Rott.) and the moths of these are also on the wing, appearing at the rate of about 1 greasy cutworm moth to 25 of the regular armyworm.

Iowa. C. J. Drake (October 31): The true armyworm and several species of cutworms are extremely abundant. Infestations of a more or less serious nature occurred in over half the counties in the State. The "catch" grass crops served as breeding places during the latter part of the summer and fall.

JAPANESE BEETLE (Popillia japonica Newm.)

United States. L. H. Worthley (October 6): The most outstanding first-record find of the Japanese beetle at a point remote from the infested

areas is that disclosed at St. Louis, Mo., where beetles were collected in numbers that indicated an established infestation. Another first-record find consisted of 17 beetles at Indianapolis, Ind., in a residential section of that city some distance from a railroad line, and another infestation at Charlottesville, Va. Other first records for the summer are: Auburn, Augusta, Gorham, and Lewiston, Maine; Medina and West Liverpool, N. Y.; Hancock, La Plata, Thurmont, and Upper Marlboro, Md.; and Berkeley Springs and Morgantown, W. Va.

CEREAL AND FORAGE - CROP INSECTS

WHEAT

HESSIAN FLY (Phytophaga destructor Say)

Ohio. T. H. Parks (October 22): Examinations of early sown wheat in Huron and Seneca Counties in northern Ohio reveal considerable infestation. Wheat sowed after the recommended seeding dates seems to be free from infestation. Examinations made in central Ohio indicate no late egg-laying, and wheat sowed after the safe seeding dates is free from infestation. There is very little early wheat in the southern half of Ohio.

Illinois. W. P. Flint (August 25): We have just completed the annual hessian fly survey conducted jointly by the Natural History Survey and Federal Bureau of Entomology and Plant Quarantine and covering the principal wheat-growing counties of the State. The infestation this year, judging from the many samples of stubble taken, is very light. Weather last spring was highly unfavorable to the fly. Apparently one would be safe in sowing wheat on the date of planting that has given the highest yield in normal years.

Iowa. C. J. Drake (October 31): The hessian fly population is at a very low ebb in most of the wheat-growing counties of the State. Although puparia may be found in the wheat fields of Monona and Woodbury Counties, there appears to be very little danger of a serious outbreak in 1935.

Kansas. H. R. Bryson (October 25): The hessian fly is much more abundant at Manhattan than last year. An area in Dickinson County is heavily infested. Fall rains have aided materially in bringing out the fly.

CHINCH BUG (Blissus leucopterus Say) ^{1/}

Illinois. W. P. Flint (October 22): Heavy flights of chinch bugs to winter quarters have occurred during the past month throughout the southern two-thirds of Illinois. The west-central counties suffered so severely from drought that the chinch bug has apparently been somewhat reduced. Very large numbers of bugs are now in winter quarters throughout the northern two-thirds of the State. Judging by past experience, we will have another severe outbreak next spring unless there is wet weather late in May and in June. We have never had a high winter-kill of chinch bugs in Illinois.

^{1/}Correction.--The note by W. A. Price on chinch bugs in Kentucky, on page 253 of the Oct. 1, 1934, issue of this bulletin, referred to the corn ear worm.

Iowa. C. J. Drake (October 31): Chinch bugs have practically all entered hibernation. They are extremely abundant over a large part of the State. Unless nature comes to the rescue of the farmers, between 60 and 70 counties in Iowa will be heavily infested in 1935. The situation at the present time appears much more serious than it did a year ago. About the only enemy of any importance, noted in Iowa, was the egg parasite Eumicrosoma benefica Gahan.

Missouri. L. Haseman (October 29): The chinch bug survey has just begun and it looks as though we will find more bugs than we had expected.

Nebraska. M. H. Swenk (October 20): Chinch bugs seem to have become considerably reduced in population, as compared with a year ago, judging from a preliminary survey recently made in a few counties, particularly Butler and Seward.

Kansas. H. R. Bryson (October 25): Chinch bugs are rather evenly distributed in grassy areas. Temperatures have not been low enough to force them to hibernate.

Texas. F. L. Thomas (October 23): Abundant in heads and under leaf sheaths of grain sorghum in the Brazos River bottom on September 22.

GREEN BUG (Toxoptera graminum Rond.)

Kansas. H. R. Bryson (October 25): Several colonies of green bugs were found in the hessian fly wheat nursery at Manhattan by R. H. Painter.

CORN

EUROPEAN CORN BORER (Pyrausta nubilalis Hbn.)

General. P. N. Ammand (October): Although the European corn borer has been held in abeyance by drought in the Middle West and Great Lakes areas, it is gradually extending its range southward along the Atlantic coast and now occupies practically the entire coastal strip from Maine to Cape Charles on the Eastern Shore of Virginia. It has increased greatly in numbers in eastern Connecticut, western Massachusetts, and the lowland and coastal counties of New Jersey during the past 2 years. A. M. Vance, Arlington, Mass., reports that scouting for the European corn borer in 1934 has resulted in the establishment of new first records of infestation in the following five counties: Hamilton in Ohio, Somerset in Maryland, Sussex in Delaware, Cumberland in New Jersey, and Northampton in Virginia.

New York. L. H. Worthley (September): Inspection of Long Island, N. Y., dahlia fields, including large acreages in which nearly a million tubers and many thousands of young plants have been set, disclosed infestations in almost every field. Fewer corn borers have been found this year in the northwestern sections of Pennsylvania, but an increase in infestation has been observed in the most recently infested counties of the

central and east-central sections, according to a report by entomologists of the Pennsylvania Department of Agriculture, who have completed a preliminary survey of the infested territory. Investigations in the oldest and most heavily infested area, that of Erie and Crawford Counties, show a continued decrease in borer population. The increase in Centre and Northampton Counties is giving the Pennsylvania entomologists some concern, for it is feared that commercial damage will soon result in these areas unless farmers change their methods of growing corn. State nursery inspectors, scouting during the latter part of September on the Eastern Shore of Virginia, reported a rather wide-spread infestation. Practically all of Accomac and Northampton Counties was scouted and found infested. In some fields as much as 50 percent stalk infestation was observed. Scouting of the mainland area of the State failed to disclose any infestation.

CORN EAR WORM (Heliothis obsoleta Fab.)

- Ohio. T. H. Parks (October 22): Corn ear worms continue to be abundant and were taken today from two heads of cabbage in which they had buried themselves and caused much injury. Growers near Cleveland report injury to tomatoes in greenhouses.
- Indiana. J. J. Davis (November 2): The corn ear worm was without question the most destructive insect of the month. Reports of enormous abundance on field and sweet corn, tomatoes, and peppers came from every section of the State. In addition, we had one report from La Porte County reporting damage to mint. The worms also ate the seed pods of soybeans and other crops. In greenhouses we found them eating into the buds and stems of a variety of crops, especially chrysanthemums and geraniums. The first reports from greenhouses were received about the first of October. The insect has been more destructive than in any year since 1921.
- Illinois. W. P. Flint (October 22): The corn ear worm continues to be excessively abundant. It is still feeding, even on dry corn in the field. The moths are flying in large numbers and ovipositing on weeds and flowers. Thousands of worms can be found in every field where there is a growth of Indian mallow.
- Kentucky. W. O. Price (October 24): Corn ear worms were very destructive to green tomatoes during September and early October. Practically all worms were gone from the tomatoes by October 10. To date no general killing frost has occurred and green tomatoes are plentiful.
- Iowa. C. J. Drake (October 31): The corn ear worm caused a decrease in the total yield of corn in the State by at least 10 percent during the past summer. In many areas it is impossible to find ears free from injury. In a number of counties new seedlings of alfalfa were seriously injured or entirely destroyed in the fall by the corn ear worm. At the present time all stages of the ear worm may be found in the fields.
- Arkansas. D. Isely (October 22): The corn ear worm has been much more than ordinarily abundant during September and early in October, out-

breaks occurring on kafir, beans, and cowpeas.

Utah. G. F. Knowlton (October 18): Corn ear worms caused serious injury to the sweet corn crop, as well as to tomato fruits, in nearly all parts of northern Utah.

California. R. E. Campbell (September 12): The tomato fruit worm is causing losses to tomato growers in the Santa Maria Valley, where strenuous control measures are required to combat it. Fruit worm damage is a common occurrence here, as well as in most other tomato-growing sections of California.

FALL ARMYWORM (Laphygma frugiperda S. & A.)

Maryland. E. N. Cory (October 24): The fall armyworm is very abundant on late corn in Washington and Prince Georges Counties.

California. F. H. Wymore (October 13): The fall armyworm has been causing considerable damage to fall lettuce in the lower Sacramento Valley during the past few weeks.

A LEAFHOPPER (Cicadula maidis DeLong and Wolcott)

California. D. B. Mackie (October 21): A leafhopper, C. maidis, reported as attacking sugarcane in Cuba and Puerto Rico, was first taken in 1933 in San Bernardino and in 1934 was reported as attacking corn in Los Angeles County. These constitute first records for the United States. A survey of California shows that this species is present in the eight southern counties from Kern and Santa Barbara to the Mexican border.

ALFALFA

ALFALFA WEEVIL (Hypera postica Gyll.)

Colorado. G. M. List (November 1): The alfalfa weevil is going into hibernation in larger numbers than for a number of years. With favorable winter conditions there is promise of considerable injury next season, especially in Mesa and Delta Counties.

Utah. C. J. Soreson (October 20): The alfalfa weevil is moderately abundant. Adults are feeding on fourth-crop alfalfa in the Bear River Valley.

California. A. E. Michelbacher (October 19): In the region comprising the Tracy area the alfalfa weevil is scarce. I collected adults but was unable to find any larvae. Both adults and larvae were collected at Pleasanton. They were present in small numbers, although in one field an average of 22 adults was collected per 100 sweeps of an insect net. All counts in the Niles district were low; as most of the fields swept had just recently been cut. In this region the parasite Bathyplectes curculionis Thoms. has been definitely established. During the past month some larvae in all large collections were found to be parasitized.

TARNISHED PLANT BUG (Lygus pratensis L.)

Utah. C. J. Sorenson (October 20): Lygus bugs have been from moderately abundant to very abundant in alfalfa fields throughout the State during the past summer. Nymphs and adults are still active in alfalfa fields having succulent growth.

SOYBEANS

VELVETBEAN CATERPILLAR (Anticarsia gemmatilis Hbn.)

North Carolina. R. W. Leiby (October 29): The velvetbean caterpillar was generally present on soybeans in several southeastern counties, particularly in Pender and New Hanover Counties, during the latter part of September. The larvae completely destroyed the foliage of acres of soybeans, causing heavy losses, as the beans were immature. Moths bred the middle of October in the laboratory.

Louisiana. W. E. Hinds (October 25): The velvetbean caterpillar has not caused complaint this year by stripping soybeans. Very slight stripping was reported in September from Iberia Parish. Moths have been abundant at Baton Rouge, but multiplication has not been as rapid as in some seasons.

GRASS

A CHRYSOMELID (Oedionychis gracilis Jacoby)

Arizona. C. D. Lebert (October 22): A beetle, O. gracilis, has been found severely injuring lippia grass lawns around Phoenix. Two lawns were nearly destroyed before control measures were applied. (Det. by H. S. Barber.)

A MITE (Siteroptes carnea Bks.)

Nebraska. M. H. Swenk (October 20): A correspondent from Box Butte County sent in specimens of alkali grass (Distichlis spicata) heavily infested with grass mites, S. carnea, during the first week in October.

SUGARCANE

SUGARCANE BORER (Diatraea saccharalis Fab.)

Louisiana. W. E. Hinds (October 25): Damage has been generally light again this season, although the cane in some fields has been badly bored. Colonization of Trichogramma has been practiced more extensively than ever before, with results generally satisfactory to growers.

Texas. F. L. Thomas (October 23): Larvae were very prevalent in late plantings of sorghum near Dickinson on September 15.

A ROOT-STOCK WEEVIL (Anacentrinus subnudus Buchanan)

Louisiana. W. E. Hinds (October 25): The brown sugarcane root-stock weevil (A. subnudus) is generally very abundant wherever we have made examinations around Baton Rouge and in the southern part of the State.

FRUIT INSECTS

APPLE

CODLING MOTH (Carpocapsa pomonella L.)

Virginia. W. J. Schoene (October 29): Damage by the codling moth to commercial apple orchards, although much less than last year, is still very important. In many orchards the injury is severe, although six or seven sprays were applied.

Ohio. T. H. Parks (October 23): The codling moth is very abundant, having increased in all parts of the State.

Illinois. W. P. Flint (October 22): Less than the normal number of larvae will go into hibernation this fall. This is due to a markedly better control, to adverse weather conditions, and to a light and scattered crop of fruit.

Arkansas. D. Isely (October 22): The codling moth has been less injurious during the present season than in any year since 1929.

LEAF CRUMPLER (Mincola indigenella Zell.)

Nebraska. M. H. Swenk (October 20): Apple twigs showing nests of the leaf crumpler were sent in from Saunders County on October 15.

FLAT-HEADED APPLE TREE BORER (Chrysobothris femorata Oliv.)

Indiana. J. J. Davis (November 2): The flat-headed borer was reported to be damaging apple at Portland on September 26, and maple at Chesterton on October 19.

Illinois. W. P. Flint (October 22): Reports of damage by the flat-headed borer continue to come in. Injury is reported on many kinds of shade and fruit trees.

Kansas. H. R. Bryson (October 25): Flat-headed apple tree borers are causing considerable injury to apple, and to oaks, maples, and other shade trees. Infestations have been noted at Manhattan in young nursery stock. Owing to the weakened condition of large numbers of trees, prospects are excellent for much injury next year.

A BOSTRICHID (Stephanopachys pacificus Csy.)

Washington. A. J. Hanson (September 29): Infested apples and adult beetles were sent in from Cashmere, Chelan County. The adults had eaten holes in the fruit, which caused it to be graded as culls. The regular spray program conducted for the codling moth failed to control this insect. This is the first report of such injury to apples.

WOOLLY APPLE APHID (Eriosoma lanigerum Hausm.)

California. E. O. Essig (October 23): The woolly apple aphid is abundant on fruit and ornamental apples in the San Francisco Bay region.

WHITE APPLE LEAFHOPPER (Typhlocyba pomaria McAtee)

Virginia. W. J. Schoene (October 29): No conspicuous damage by leafhoppers to apples was observed until about picking time, when the white apple leafhopper became abundant in practically all orchards.

PEACH

PEACH BORER (Aegeria exitiosa Say)

Rhode Island. A. E. Stene (October 25): Peach borers have been, if anything, more numerous than last year. The weakening of peach trees by severe winter weather has probably intensified the injury caused by this insect.

Illinois. W. P. Flint (October 22): The peach tree borer is quite abundant this fall, adults having had very favorable conditions for oviposition.

Georgia. O. I. Snapp (October 19): The last moths emerged at Fort Valley during the first week in October, therefore the adult emergence season this year was shorter than usual.

Ohio. E. W. Mendenhall (October 3): Peach borers are quite injurious this year in nursery stock, as well as in peach orchards in central Ohio.

PLUM CURCULIO (Conotrachelus nemophar Hbst.)

Rhode Island. A. E. Stene (October 25): The plum curculio is scarce in some places and abundant in others.

Georgia. O. I. Snapp (October 19): Adults have entered hibernation at Fort Valley, and the hibernating population is larger than usual as a result of the heavy infestation this year.

FULLER'S ROSE BEETLE (Asynonychus godmani Crotch)

Georgia. O. I. Snapp (October 12): These insects are common in Georgia peach orchards and they have done considerable feeding on peach foliage during the fall months.

A JUNE BEETLE (Cotinis texana Csy.)

California. H. J. Quayle (September 22): A week or two ago this beetle was picked up in Riverside. It had not been known heretofore as occurring in California, but is common in Arizona and adjoining territory, including Mexico, and may prove to be a rather dangerous insect. It attacks ripe peaches, apricots, grapes, tomatoes, and other fruits and vegetables, being especially fond of peaches.

GRAPE

GRAPE PHYLLOXERA (Phylloxera vitifoliae Fitch)

California. D. B. Mackie (October 20): Surveys just completed show that Madera County, hitherto considered to be infested with grape phylloxera, is free from this grape pest.

WALNUT

WALNUT HUSK FLY (Rhagoletis juglandis Cress.)

Nebraska. M. H. Swenk (October 20): A house in Lancaster County was reported as being overrun by maggots of the walnut husk fly, coming from a large storage of walnuts in the attic.

CITRUS

VEGETABLE WEEVIL (Listroderes obliquus Gyll.)

California. D. B. Mackie (October 20): The adult vegetable weevil has been taken on citrus and avocado trees in Orange County for the first time. This is over 250 miles south of the nearest previously known infestation. Surveys are under way to determine the extent of the infestation.

NAVEL ORANGE WORM (Myelois venipars Dyar)

Texas. R. E. McDonald (September 29): Two live larvae, collected from fruit of orange at Laredo, Webb County, on September 23, were identified by C. Heinrich as M. venipars.

A LEAF-FOOTED BUG (Leptoglossus gonagra Fab.)

Florida. J. R. Watson (October 25): L. gonagra was reported as seriously damaging citrus in one grove in Highlands County. This bug breeds on citron growing in citrus groves and sometimes attacks citrus after the citron plants die down in the fall.

FLORIDA RED SCALE (Chrysomphalus aonidium L.)

Florida. J. R. Watson (October 25): The Florida red scale is very abundant and is gradually increasing in numbers.

TRUCK - CROP INSECTS

SOUTHERN GREEN STINK BUG (Nezara viridula L.)

Florida. J. R. Watson (October 25): Pentatomids, chiefly N. viridula, are doing about their usual damage to fall truck crops and to early varieties of citrus in groves where the cover crop was allowed to remain uncut too late in the season.

F. S. Chamberlin (October 25): N. viridula is far more abundant than usual on beans and other food plants in Gadsden County.

Louisiana. W. E. Hinds (October 25): Southern green stink bugs are very abundant on soybeans and have apparently done considerable injury to developing seed pods, decreasing the growth of seed.

FALSE CHINCH BUG (Nysius ericae Schill.)

Nebraska. M. H. Swenk (September 20 to October 20): During the third week in October there were heavy migrations of nearly fledged false chinch bugs in Lancaster County.

TOMATO

TOMATO PIN WORM (Gnorimoschema lycopersicella Busck)

California. R. E. Campbell (October 10): The pin worm has been exceedingly abundant this fall in San Diego, Orange, and Los Angeles Counties. Many fields were observed with practically 100 percent infestation of fruits. Population counts, which probably give a little better than half of the total worm population, showed counts ranging from 40 to 50 worms per plant, the maximum being 58. At this date the population is decreasing, owing to cooler weather, but the crop to be harvested in October will be greatly reduced.

A PLANT BUG (Enthia picta Drury)

Texas. F. L. Thomas (October 23): P. picta is very destructive. It was found on September 6 on tomatoes near Eagle Pass in the Quemado Valley.

BEANS

BANDED CUCUMBER BEETLE (Diabrotica balteata Lec.)

South Carolina. W. J. Reid, Jr. (October 10): The banded cucumber beetle is apparently more numerous and destructive than usual in the Charleston area this fall. The adults began feeding on beans, cucurbits, peppers, and cabbage at the South Carolina Truck Experiment Station as soon as fall plantings of these crops came up during the latter part of August and during September. They have continued to be injurious until the present. Beans and young cucurbits suffered most. The plants of small plantings of beans and those around the

edges of commercial fields have in many cases been almost entirely defoliated. This species has apparently been much more abundant than the other Diabroticas. It has increased markedly in the Charleston area during the past 10 years.

Florida. J. E. Watson (October 25): The banded cucumber beetle is doing some damage to truck crops in Alachua County.

Alabama. J. M. Robinson (October 20): The banded bean beetle is attacking beans and other vegetables in Elmore County, in the southern and central parts of the State.

Mississippi. M. M. High (October 2): The belted cucumber beetle is plentiful on cabbage, turnip, collards, and other cruciferous crops along the Gulf Coast.

California. R. E. Campbell and J. C. Elmore (September 22): Adults of the belted cucumber beetle are very numerous and are feeding on peppers, tomatoes, beans, and several weeds at San Juan Capistrano. The beans showed considerable feeding and the beetles were damaging the foliage of peppers and tomatoes. This insect was first found in San Diego County several years ago and seems to be gradually moving northward and becoming more numerous. It was found in Orange County about 2 years after its appearance in San Diego, later in Los Angeles, and last year in Ventura County. San Juan Capistrano is the only locality where the adults have been plentiful enough to cause damage this season. They were abundant there about 3 years ago. (October 10): Several fields of late wax beans in the frostless foothills near Santa Ana are sufficiently infested to require control measures. Beetles are also numerous in cucumber fields.

MEXICAN BEAN BEETLE (Epilachna corrupta Muls.)

Virginia. W. J. Schoene (October 29): The injury by the Mexican bean beetle has been somewhat more conspicuous over the entire State than usual and the feeding of the larvae continued until frost, severely injuring the late-planted beans.

BEAN LEAF ROLLER (Goniurus proteus L.)

Mississippi. M. M. High (September 25): The bean leaf roller has caused considerable injury to small plantings of pole beans along the Gulf Coast. It is more numerous than it has been for several seasons.

A LOOPER (Autographa egea Guen.)

California. R. E. Campbell and J. C. Elmore (September 20): Two fields of Kentucky wonder and one field of lima beans in western Orange County were entirely skeletonized. This is the first record we have of this looper seriously damaging beans outside of Ventura County. (October 10): Several fields of snap beans on poles in the foothills near Santa Ana have been severely damaged. The insect was so abundant

that it was possible to gather several pupae per leaf on many plants.

CABBAGE

IMPORTED CABBAGE WORM (Ascia rapae L.)

Ohio. F. H. Parks (October 23): The imported cabbage worm is very abundant and very serious.

Texas. F. L. Thomas (October 23): On September 12 many farms in Dickinson County were found to be infested.

California. R. E. Campbell (October 1): The fall crop of cabbage and cauliflower in Los Angeles and Orange Counties is generally infested, most fields requiring control measures. Counts show an average of three worms per plant.

CROSS-STRIPED CABBAGE WORM (Evergestis rimosalis Guen.)

Mississippi. M. M. High (September 23): The cross-striped cabbage worm was observed seriously injuring young cabbage on several farms about Lyman.

CABBAGE WEBWORM (Hellula undalis Fab.)

Mississippi. M. M. High (October 2): The imported cabbage webworm was found severely injuring turnips in greenhouses at Gulfport, and considerable damage was observed in fields of young cabbage and turnips.

MELONS

A CUCUMBER BEETLE (Diabrotica connexa Lec.)

Texas. F. L. Thomas (October 23): D. connexa was found on cucumbers and cantaloups in Winter Haven during September.

LETTUCE

BEET ARMYWORM (Laphygma exigua Hbn.)

California. R. E. Campbell (September 22): Young unthinned lettuce in the San Fernando Valley is being attacked, and in some instances severely injured by the sugar beet armyworm. Some fields of sugar beets were also attacked but not seriously injured.

F. H. Wymore (October 13): The beet armyworm has caused considerable damage to fall lettuce in the lower Sacramento Valley during the past few weeks.

SALT-MARSH CATERPILLAR (Estigmene acraea Drury)

California. F. H. Wymore (October 13): Woolly bear caterpillars, mostly E. acraea, have caused considerable damage to fall lettuce in the lower Sacramento Valley during the past few weeks. In two or three fields the caterpillars have destroyed several acres of the lettuce. They have also injured late tomatoes by chewing into the fruits.

CELERY

CELERY LEAF TIER (Phlyctaenia rubigalis Guen.)

California. R. E. Campbell (September 17): A 1-acre seedbed of celery in Orange County was observed to be entirely defoliated by the celery leaf tier. A nearby field was also badly infested and most of the celery will not be marketable. These fields were in the vicinity of the sugar beets reported on page 266 of the October 1, 1934, issue of this bulletin as being damaged by the leaf tier.

STRAWBERRY

STRAWBERRY LEAF ROLLER (Ancylis comptans Froel.)

Nebraska. M. H. Swenk (September 20 to October 20): The presence of strawberry leaf rollers on strawberry plants in Hall County as late as October 12 has been reported.

A ROOT WORM (Graphops pubescens Melsh.)

Nebraska. M. H. Swenk (September 20 to October 20): Many grubs of the strawberry root worm were sent in during the third week in September by a correspondent from Jefferson County.

CHANGA (Scapteriscus vicinus Scudd.)

North Carolina. W. A. Thomas (October): The mole cricket (S. vicinus) has been particularly abundant in strawberry fields and in areas of fall-grown truck crops in North Carolina.

BEETS

BEET LEAFHOPPER (Eutettix tenellus Bak.)

Utah. G. F. Knowlton (October 13): Beet leafhoppers and curly-top disease have caused serious damage to sugar beets and tomato plants in most parts of Utah in which these crops are grown. Even without the drought, serious damage would have been expected with such high populations of the leafhopper in the agricultural districts.

Colorado. W. A. Shands (October): Curly-top disease in the two main beet areas on the western slope of Colorado continued to increase during the summer, until by the end of September practically 100 percent of

the plants were infected. Although most of the acreage in this area is planted to so-called resistant sugar beets, it is anticipated that the tonnage yield on the western slope will be considerably less than in 1933.

MUSHROOMS

A MYCETOPHAGID (Litargus balteatus Lec.)

Colorado and New Mexico. A. C. Davis (November 2): A beetle, L. balteatus, has been reported as doing considerable damage to mushrooms in commercial houses at Albuquerque, N. Mex., and at Denver, Colo. This insect is native and is distributed throughout the United States, but has not heretofore been reported as being of economic importance. (Determined by W. S. Fisher)

F O R E S T A N D S H A D E - T R E E I N S E C T S

GYPSY MOTH (Porthetria dispar L.)

General. L. H. Worthley (October): Recent inspections of woodlots, nurseries, and quarries in areas which have previously been regarded as uninfested have disclosed a number of positive finds. Inspection of a private forest at Clarks Corner, Conn., has resulted in the finding of 125 egg clusters scattered over a large section. Several carloads of cordwood are to be shipped from this locality under gypsy moth certification. Quarries at Concord and Suncook, N. H., have been found to be heavily infested. Egg clusters are in evidence, and the surrounding trees and shrubs are heavily infested. Scouting in a nursery in the Concord district disclosed egg clusters on nursery stock and white pine trees. There is an apparent increase in infestation in the trees bordering a number of nurseries in the Newport, R. I., district. While scouting for satin moth infestations at Shelburne, N. H., in the lightly infested gypsy moth area, an infestation was discovered.

A. F. Burgess (October 2): Newly hatched larvae were found on two of the egg clusters discovered at Warren, Conn., last week. Although fall hatching is not common, occasionally a few eggs in a cluster will hatch on warm days during the fall months. Word has been received that two gypsy moth egg masses have recently been found in New Jersey within half a mile of an assembling cage in Morris Township which attracted 12 adult male gypsy moths last summer. These egg clusters are approximately three-quarters of a mile east of the location of infestation found in Mendham Township during the fiscal years 1933 and 1934. The discovery of an infestation at Mauch Chunk, Pa., was a result of woodland scouting in the immediate vicinity of an assembling cage that attracted and caught a male moth during the summer.

Rhode Island. A. E. Stene (October 25): The number of gypsy moths has increased greatly, as compared with recent years.

FALL WEBWORM (Hyphantria cunea Drury).

Virginia. C. R. Willey (October 15): The fall webworm is very abundant and is causing considerable concern to owners of shade trees.

GIANT APHID (Longistigma caryae Harr.)

Massachusetts. J. V. Schaffner, Jr. (October 25): On October 4 and 10, specimens were received from Medford and Saugus. At Medford the aphid was reported as being very abundant on branches of red oak shade trees.

New York. C. R. Crosby (October 29): Specimens received from Floral Park, L. I., where they were attacking sycamore.

New England. E. P. Felt (October 24): The giant aphid and its eggs have been reported as very abundant in several localities in southern New England.

HEMLOCK

A SPANWORM (Ellopia sp.)

Massachusetts. J. V. Schaffner, Jr. (October 26): Larvae that were defoliating hemlock in the State forest in the southern part of Warwick were brought in for identification on September 23. C. L. Griswold and myself visited this infestation on October 11 and found pupae rather abundant just beneath the top crust of needles in the leaf mold and most abundant within a radius of 13 inches of each hemlock tree. It is estimated the more seriously infested area covers at least 10 acres, the growth being about 30 percent hemlock, averaging about 40 feet in height. The foliage of the hardwoods intermixed showed no evidence of feeding, while the hemlock trees on this area were from 50 to 100 percent defoliated. The larvae of this species are much darker in color than those of the hemlock spanworm (E. fiscellaria Guen.), and the moths of the latter issue during September and early October, whereas this species apparently passes the winter in the pupal stage.

LOCUST

LOCUST LEAF MINER (Chalepis dorsalis Thunb.)

Virginia. C. R. Willey (October 15): The locust leaf miner is very abundant in the Piedmont and mountain sections.

OAK

OAK SKELETONIZER (Bucculatrix ainsliella Murt.)

Massachusetts. J. V. Schaffner, Jr. (October 26): A collection of cocoons of this insect and some badly skeletonized leaves of red oak were received from Gloucester on August 13, with a report that considerable injury had been done on a large private estate. Many full-grown larvae, together with specimens of skeletonized oak foliage, with a report that an area at least 5 miles in length in the vicinity of Gloucester was seriously infested, were brought in on October 5. This indicates that there are at least two generations of the insect. An examination on October 16 showed that the oak woodlands in parts of Beverly, Essex, Manchester, and Gloucester are quite generally infested, extending over at least 25 to 30 square miles. In the heaviest infestations the foliage of black, red, and white oaks was completely skeletonized. Larvae were abundant on the underside of the leaves and thousands of newly formed cocoons could be seen on grass, weeds, twigs, and tree trunks.

SPRUCE

A CURCULIONID (Thylacites incanus L.)

New York. J. V. Schaffner, Jr. (October 26): Specimens taken on blue spruce on October 11 at North Roslyn were sent in for identification and suggestion for control. (Det. by L. L. Buchanan.)

INSECTS AFFECTING GREENHOUSE
AND ORNAMENTAL PLANTS

ORNAMENTALS

A WEEVIL (Brachyrhinus cribricollis Gyll.)

California. D. B. Mackie (October 20): The cribrate weevil (B. cribricollis) has been taken for the first time in Orange County at Anaheim.

GREENHOUSE THRIPS (Heliothrips haemorrhoidalis Bouche)

California. E. O. Essig (October 23): The greenhouse thrips was unusually abundant and destructive to many plants and shrubs in San Francisco Bay region this fall. Privets, rhododendrons, laurestinus, myrtles, ferns, and other plants are infested.

GROUND MEALYBUG (Rhizoecus terrestris Newst.)

California. E. O. Essig (October 23): The ground mealybug is common and injurious to cultivated plants and lawns in the San Francisco Bay region this fall. It has killed both plants and grasses.

CHINESE MANTIS (Tenodera sinensis Sauss.)

Connecticut. W. E. Britton (October 23): About the middle of October two adults of the Chinese mantis were received from West Haven and one from New Canaan, showing that the species had survived the very severe winter.

BOXWOOD

BOXWOOD LEAF MINER (Monarthropalpus buxi Labou.)

Tennessee. C. R. Willey (October 15): An infestation of the boxwood leaf miner was found in Bristol on September 27 or 28. We received specimens for identification on October 1.

PHLOX

PHLOX BUG (Lopidea media Say)

Ohio. E. W. Mendenhall (October 22): Phlox bugs were very abundant on phlox plants at Grove City, Franklin County.

I N S E C T S A T T A C K I N G M A N A N D D O M E S T I C

. A N I M A L S

MAN

BLACK WIDOW SPIDER (Latrodectes mactans Fab.)

Virginia. C. R. Willey (October 15): A number of spiders have been brought in, some of which were the hour-glass, or black widow.

Georgia. O. I. Snapp (October 10): Another hour-glass spider was collected today at Fort Valley.

Nebraska. M. H. Swenk (September 20 to October 20): The dry summer has been favorable to the development of spiders, the black widow being more abundant than ever before in this State, especially in the central and western parts. During the period here covered, specimens were sent in from various localities in Dawes, Sheridan, Box Butte, Kimball, Lincoln, Logan, Custer, and Furnas Counties, and there were press reports of their occurrence elsewhere, including statements that several persons had been bitten and made seriously but not fatally ill.

Utah. G. F. Knowlton (October 18): People continue to bring in, and inquire about, black widow spiders. This spider is rather common this year in many parts of northern Utah.

CATTLE

SCREW WORMS (Cochliomyia spp.)

General. J. L. Webb (November 1): Late in May two cases of infestation were found in Georgia. In June numerous cases came to light in Georgia and Florida, distributed over several counties in each State. As the season advanced, both the area and the intensity of infestation in these States increased. Heavy infestations were also found in Alabama, Mississippi, and Louisiana, and in eastern Texas. Light infestations were also reported from South Carolina. Over a large part of the infested area attacks by the Gulf coast tick (Amblyomma maculatum Koch), especially in the ears of sheep, provided places of attack for the screw worm. Death losses among sheep in some cases have been heavy. In Georgia, the southern two-thirds of the State has been infested, the infestation being heaviest in the southern half of this area. In Alabama, roughly the southern half of the State is infested in varying degrees of intensity. In Mississippi, serious infestations were found in the coastal counties and in Wayne, Greene, Perry, Forrest, Lamar, Jefferson Davis, Covington, Jones, Lawrence, George, Stone, Pearl River, Marion, Walthall, Pike, Lincoln, Amite, Franklin, Adams, Wilkinson, and Jefferson Counties. North of these counties to a line extending east from Vicksburg through Jackson, the infestation has been of medium intensity. Considering these counties as a whole, the average infestation in different classes of animals has been as follows: Cattle, 11 percent; sheep, 15 percent; goats, 6 percent; horses and mules, 9 percent; hogs, 11 percent; and dogs, 14 percent. In Florida, there are serious infestations in the north and north-central counties, extending as far south as Hernando County, on the west coast. Scattered infestations exist as far south as Dade County. In Iowa, a rather light and entirely detached infestation has been reported from the northwestern part of the State. In Louisiana, heavy infestations in Washington, Saint Tammany, Tangipahoa, Allen, Beauregard, and Calcasieu Parishes were reported, and medium to light infestations in the parishes of Morehouse, West Carroll, East Carroll, Richland, Madison, Franklin, Tensas, Concordia, Vernon, Rapides, West Feliciana, East Feliciana, Saint Helena, Evangeline, Livingston, Jefferson Davis, Ascension, Saint Mary, Saint Charles, Jefferson, La Fourche, and Avoyelles. Death losses among sheep on open ranges have been heavy. In eastern Texas it has been possible to obtain close estimates of the degree of infestation in different classes of animals. In Orange County, 8 percent of the cattle and 4 percent of the hogs were infested. In Jefferson County, an infestation of 8 percent in cattle and 12 percent in a rather small number of horses and mules was reported. In Liberty County, 27 percent of the cattle, 12 percent of the horses and mules, 15 percent of the sheep, 14 percent of the goats, and 13 percent of the hogs were reported to be infested. In Refugio County, the infestation averaged 9.36 percent in cattle, 16 percent in horses and mules, 6.6 percent in sheep, 16.6 percent in goats, and 33-1/3 percent in hogs. In Victoria County, a 23.5 percent infestation in cattle, 13.6 percent in horses and mules was reported, while in four small herds of sheep, 30.2 percent were infested and in

one small herd of goats 23.5 percent were infested. Of the total number of hogs examined 34.5 percent were infested during the season. In Wharton County, 20.9 percent of the cattle have been infested during the season and 4.3 percent of the horses and mules. In three herds of sheep totaling 335 animals, apparently only 2.6 percent were infested during the year. In two herds of goats, consisting of 350 animals, 1.25 percent have apparently been infested. Of the total number of hogs, about 17 percent were infested during the season.

Georgia. O. I. Snapp (October 14): A number of infestations have been reported during the past month, most of them representing attacks on mules. Two instances of the worms attacking negresses in Macon were reported, one case proving fatal. The insect was not known to occur in Peach County until this year.

HOUSEHOLD AND STORED-PRODUCT INSECTS

STORED GRAIN INSECTS

Illinois. W. P. Flint (October 22): Considerable quantities of grain, particularly corn, are still being held in sealed cribs and insect damage is increasing.

Nebraska. M. H. Swenk (September 20 to October 20): Complaints of stored-grain pests continued to be received in numbers during the period here covered. These reports were received chiefly from the area enclosed by Clay, York, Polk, Custer, Logan, and Hitchcock Counties. Most of them related to infestations of shelled corn in sacks or drums, although in some instances stored wheat, cane, or sorghum seed was reported to be infested. The infestations related not only to the true granary weevil (Sitophilus granaria L.), but also extensively to the cadelle (Tenebroides mauritanicus L.), the yellow meal worm (Tenebrio molitor L.), and the saw-toothed grain beetle (Oryzaephilus surinamensis L.). From Polk and Lincoln Counties came reports that stored cane, Sudan, kafir, and sweetclover seed were badly infested by the Indian-meal moth (Plodia interpunctella Hbn.).

Correction. On page 30 of the Insect Pest Survey Bulletin for March 1934, Cryptopeltus notatus should read Cyrtopeltis notatus.

NOTE ON FIG MOTH IDENTIFICATION

Petez Simmons, Fresno, Calif., wishes to correct an error in the identification of the fig moth (Ephestia cautella Walk.), as published in Fig Insects of California, by himself, W. D. Reed, and E. A. McGregor (U. S. Dept. Agr. Circ. 157, p. 36, April 1931). The species common on dried fruits is E. figulilella Greg. Mr. Simmons says, "E. cautella occurs in California on almonds, but we have not taken it on dried fruits or in vineyards or orchards."

THE SPECIES AND DISTRIBUTION OF GRASSHOPPERS RESPONSIBLE
FOR THE 1934 OUTBREAK

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In connection with the grasshopper control campaign of 1934, an adult grasshopper survey was made in the more heavily infested States during the latter part of July and the month of August to determine the results of the poisoning operations and to locate areas where grasshoppers were still abundant and where eggs might be found during the fall egg survey. Considerable data were also obtained regarding the species responsible for the outbreak and their relative abundance in some of the more common grasshopper habitats.

DOMINANT SPECIES IN MONTANA, NORTH DAKOTA, SOUTH DAKOTA, AND WYOMING

In Montana, North Dakota, South Dakota, and Wyoming, specimens were collected in typical environment by State leaders and their assistants. From 5 to 20 collections, representative of the grasshopper population of a certain habitat, were made in each county. The specimens were killed in radiator alcohol and dried and preserved between sheets of paper toweling. A record was kept of the location and kind of environment. These specimens were later identified and counted to determine the percentage of each species in the total number collected in each habitat. The collections from these four States included 44,700 specimens. The data were then grouped according to the geographical distribution and habitat.

^{1/}The writer is indebted to the following State leaders who cooperated in making the survey of abundance of adult grasshoppers or in furnishing information regarding dominant species in their States: E. D. Ball, Arizona; Stewart Lockwood, California; S. C. McCampbell, Colorado; Claude Wakeland, Idaho; C. J. Drake, Iowa; G. A. Dean, Kansas; Ray Hutson, Michigan; A. G. Rugles, Minnesota; A. L. Strand, Montana; O. S. Bare, Nebraska; G. C. Schweis, Nevada; J. R. Eyer, New Mexico; F. D. Butcher, North Dakota; D. C. Mote, Oregon; A. L. Ford, South Dakota; W. W. Henderson, Utah; E. L. Chambers, Wisconsin; C. L. Corkins, Wyoming.

Each of the four States was subdivided into districts. This subdivision was based on a general knowledge of the difference in topography, crops, climatic conditions, plant associations, and differences in the normal distribution of dominant species of grasshoppers.

North Dakota

District 1. Eastern. Counties east of the 99th meridian. Prairie or tall-grass region.

District 2. Northern and western. Counties north of 48° latitude and west of 99° longitude. Plains or short-grass region.

District 3. Southern and western. Counties south of 48° latitude and west of 99° longitude. Plains or short-grass region.

South Dakota

District 1. Northeastern. Counties east of 99° longitude, and north of 44.2° latitude. Prairie or tall-grass region.

District 2. Southeastern. Counties east of 99° longitude, and south of 44.2° latitude. Prairie or tall-grass region.

District 3. Central. Counties between 99° longitude and 102° longitude. Short-grass region.

District 4. Western. Counties west of 102° longitude. Short-grass and yellow pine region, also Black Hills area.

Wyoming

District 1. Eastern. Counties east of the Big Horn Mountains and 107° longitude in the northeast, and east of the Laramie Mountains and 106° longitude in the southeast. Short-grass region.

District 2. Western. Counties west of district 1. Sagebrush region.

Montana

District 1. Western and mountain. Counties immediately east of the Continental Divide to the 118th meridian in the north, then south to the Missouri River, east to 108.5° longitude, and south to the border. Short-grass and lodgepole pine area.

District 2. Northern and eastern. Counties north of the Missouri River from the 112th meridian east. Short-grass region.

District 3. Eastern. Counties south of the Missouri River and east of 108.5° longitude.

TYPICAL ENVIRONMENTS IN WHICH COLLECTIONS WERE MADE

Collections were made only in the most common grasshopper habitats in each district. These were:

1. Small grain.--Wheat, oats, rye, barley.
2. Legumes.--alfalfa, sweetclover, peas.
3. Corn.
4. Flax.
5. Roadside.--Native grasses, Russian-thistle (Salsola pestifer), ragweed (Ambrosia sp.), wild lettuce (Lactuca sp.), lambsquarters (Chenopodium sp.), sunflower (Helianthus sp.), pigweed (Amaranthus sp.), gumweed (Grindelia squarrosa), sagebrush (Artemisia sp.)
6. Weedy patches.--Native grasses and the same weeds as in roadside environments.
7. Russian-thistle mats.--Mostly pure stands.
8. Plains grassland (native grasses of the open range).--Grama grass (Bouteloua gracilis), buffalo grass (Bulbilia dactyloides), western wheatgrass (Agropyron smithii), western needlegrass (Stipa comata), wiregrass (Aristida longiseta), nigger-wool (Carex filifolia), junegrass (Koeleria cristata).
9. Low-mountain grassland.--Mostly grama grass (Bouteloua gracilis) with an abundant admixture of nigger-wool (Carex filifolia) and junegrass (Koeleria cristata).
10. Pasture grassland.--Fenced and smaller areas of native sod, surrounded by cropped fields. Here are found the native grasses of the plains grassland and also some of the tall prairie grasses, bluestem bunch grass (Andropogon furcatus), bluestem sod grass (A. scoparius), needlegrass (Stipa spartea), and slender wheatgrass (Agropyron tenerum).

The greatest differences are between the cultivated crop environments and the grassland habitats. There were two reasons for considering the crops separately: First, the species of grasshoppers show distinct preferences for certain crops. By separating the crops important preferences are emphasized. Secondly, crops vary in their importance and abundance from one district to another.

The grassland areas were divided into plains, low-mountain grasslands, and pasture grasslands. Plains and low-mountain grasslands include the open ranges and are kept separate because of their topography. The plains grasslands occur in lower and more level regions, whereas the low-mountain grasslands are in the higher and hilly regions. Pasture grassland consists of native sodlands, fenced into small units of less than 80 acres and surrounded by

cultivated crops. These small areas of native sod pasture are bound to be influenced by adjoining crops. Therefore, they are treated as distinct from open-range grasses.

Many collections were made along roadsides bordering two or more distinct types of vegetation. These roadsides contain a mixture of native grasses and weeds, with somewhat similar flora throughout. Because of this similarity, they are considered as a distinct habitat. Many farms contain waste land and weedy pastures covered with grasses and weeds. These are also considered as a distinct environment and are called weedy patches.

Most of the crops in the drought-stricken areas were destroyed early by the lack of moisture. Such heavy stands of pure Russian-thistle had sprung up that the original crops could not be recognized. There were thousands of acres of Russian-thistle mats all over the Dakotas. These were also treated as representing a separate environmental condition.

DISTRIBUTION BY STATES OF THE GRASSHOPPERS IN TYPICAL ENVIRONMENTS

The distribution for each State of the species in each of the ten environments and the frequency with which each species occurs are shown in tables 1 to 10. The distribution is given in terms of percentage of the total number of specimens collected in each habitat. The species are listed and their relative abundance given for each of the ten environments in all the districts.

Certain habitats are not listed for all States and districts. In some habitats such as corn and flax environments, the crop was of minor importance in certain regions. Practically no low-mountain grassland occurs in North Dakota and some of the other districts. In other places, collections were not made along roadsides and in pastures. Therefore, there are gaps for the districts where certain environments were not considered.

Table 1.—Distribution of grasshopper species in small areas (14,304 specimens).

Species	North Dakota				South Dakota				Wyoming				Montana			
	1-E	2-NW	3-SE	1-NE	3-U	4-W	1-E	1-W	2-NE	3-E						
<i>Aeoloplus turnulli</i> Thos	---	---	---	---	---	---	.71	---	---	---			---	---	---	---
<i>Aeneotettix deorum</i> Scudd	1.77	1.21	5.97	40.54	5.09	16.14	15.00	1.93	1.64	2.07			---	---	---	---
<i>Aulocara elliptici</i> Thos	---	---	---	---	---	---	10.71	---	---	---			---	---	---	---
<i>Amphitornus bicolor</i> Thos	.06	.33	.22	---	.23	1.11	1.42	1.09	---	---			---	---	---	---
<i>Archia pseudonietana</i> Thos	.18	.03	.06	---	---	.37	---	.17	1.06	---			---	---	---	---
<i>Bruneria brunnea</i> Thos	.06	---	---	---	.46	---	.71	.50	---	---			---	---	---	---
<i>Samula pellucida</i> Scudd	54.02	8.49	8.49	5.41	.23	6.12	6.43	2.94	2.00	2.55			---	---	---	---
<i>Orthippus curtipennis</i> Harr	.54	.03	---	---	---	---	---	---	.27	---			---	---	---	---
<i>Coralliacris crenulata</i> Brun	---	---	---	---	---	---	---	---	.06	---			---	---	---	---
<i>Dissosteira carolina</i> L.	1.65	2.56	3.03	2.70	4.06	2.25	---	.76	4.75	5.10			---	---	---	---
<i>Drepanopterna femoratum</i> Scudd	---	.03	1.12	---	1.37	1.48	4.29	.25	.94	1.16			---	---	---	---
<i>Derotmena haydeni</i> Thos	---	---	---	---	---	.19	---	---	---	---			---	---	---	---
<i>Encyrtolophus costalis</i> Scudd	1.38	1.30	1.09	---	---	.73	---	2.27	2.17	.23			---	---	---	---
<i>Gomphocerus clavatus</i> Thos	.09	---	---	---	---	---	---	1.09	---	---			---	---	---	---
<i>Hadrotettix trifasciatus</i> Say	---	---	.13	---	---	.37	---	.00	---	---			---	---	---	---
<i>Hesperotettix viridis</i> Thos	---	.09	.28	---	---	.37	2.14	.42	.06	---			---	---	---	---
<i>Hypochlora alba</i> Dodge	.15	---	---	---	---	---	---	.76	---	---			---	---	---	---
<i>Melanoplus angustipennis</i> Dodge	.69	.45	2.05	5.41	3.24	2.70	.71	---	.18	.23			---	---	---	---
<i>Melanoplus bivittatus</i> Say	6.49	1.46	4.37	---	2.08	4.02	13.57	2.61	.23	---			---	---	---	---
<i>Melanoplus powditchi</i> Scudd	.03	.03	.15	---	---	---	---	---	---	---			---	---	---	---
<i>Melanoplus dawsoni</i> Scudd	.42	.33	.22	---	.23	---	2.14	2.17	.76	---			---	---	---	---
<i>Melanoplus differentialis</i> Thos	.30	.15	3.74	---	8.33	2.41	---	---	---	---			---	---	---	---
<i>Melanoplus femur-ruforum</i> Deg	10.61	11.46	10.33	---	.69	5.75	10.71	6.31	8.75	4.18			---	---	---	---
<i>Melanoplus glabroni</i> Scudd	.33	.52	1.06	---	---	2.41	---	2.02	4.35	1.16			---	---	---	---
<i>Melanoplus infantilis</i> Scudd	.12	.42	.75	---	.23	.56	.71	4.96	4.40	1.62			---	---	---	---
<i>Melanoplus laticrus</i> Scudd	---	---	---	---	.69	---	---	---	---	---			---	---	---	---
<i>Melanoplus mexicanus</i> Sauss	15.39	64.00	40.29	27.03	60.42	37.11	17.86	52.57	47.21	68.91			---	---	---	---
<i>Melanoplus packardii</i> Scudd	3.04	2.72	5.34	8.11	7.18	4.27	2.86	8.03	5.52	3.71			---	---	---	---
<i>Mestobregma kiowa</i> Thos	.51	.53	.97	5.41	.69	---	---	3.95	3.70	.23			---	---	---	---
<i>Mermiria maculipennis</i> McLunghi Rehn	---	---	---	---	---	---	---	---	---	.23			---	---	---	---
<i>Metator paralinus</i> Sauss	.07	.12	.67	---	.23	.56	1.42	.34	2.17	4.64			---	---	---	---
<i>Opeia obscura</i> Thos	.05	.09	3.57	---	---	.19	---	---	2.23	---			---	---	---	---
<i>Orpinulella speciosa</i> Scudd	.21	---	1.09	---	---	---	---	---	---	---			---	---	---	---
<i>Phloxostroma quadrimaculatum</i> Thos	---	.03	2.87	---	.46	.37	.71	2.78	2.00	---			---	---	---	---
<i>Phoebastria nebrascensis</i> Thos	.39	2.27	3.66	2.70	1.65	7.98	2.14	1.01	2.35	.70			---	---	---	---
<i>Pharagemon collaris</i> Scudd	1.41	.73	.31	---	.93	.92	2.14	---	.10	.70			---	---	---	---

Table 1. (Cont'd.)

Species	North Dakota		South Dakota		Wyoming		Montana			
	1-E	2-NW	3-SW	1-NE	3-C	4-W	1-E	1-W	2-NE	3-E
Spharagemon equalis Say	--	:	.06	:	2.70	:	.23:	.56:	1.42	: .17: 2.06 : .93.
Trimerotropis campestris McNeill--	--	:	--	:	--	:	--	--	2.14	: --: --
Trimerotropis pallidipennis Burm--	--	:	--	:	--	:	--	--	--	: --: .66: --

Table 2.--Distribution of grasshopper species in legumes (5,575 specimens)

Species	North Dakota			South Dakota			Wyoming			Montana		
	1-E	3-SW	1-NE	2-SE	3-C	4-W	1-E	2-W	1-W	2-NE	3-E	
<i>Aeoloplus turanulii</i> Thos----	--	--	--	--	.60	--	--	.13	--	--	--	
<i>Agavegetrix aequalis</i> Scudd----	5.59	3.09	25.00	11.77	3.88	15.83	12.95	.92	1.00	.73	.88	
<i>Aulocara elioti</i> Thos-----	--	--	--	--	--	4.02	2.16	--	--	--	--	
<i>Amphitetrus viclor</i> Thos-----	--	--	--	--	--	.25	.24	.26	--	--	--	
<i>Arphia pseudonietana</i> Thos-----	--	--	--	--	--	--	.36	--	--	1.37	--	
<i>Boopodon nubilum</i> Say-----	--	--	--	--	--	--	--	--	--	1.39	--	
<i>Bruneria brunnea</i> Thos-----	.70	--	--	--	--	--	--	--	.11	--	--	
<i>Camula pellucida</i> Scudd-----	13.28	--	1.37	--	--	3.27	1.80	12.86	5.64	.93	4.84	
<i>Chloaelis conspersa</i> Harr-----	--	--	--	--	--	--	.12	--	--	--	--	
<i>Chorthippus curtipennis</i> Harr-----	--	--	--	--	--	--	--	.37	--	--	--	
<i>Jordallacris crenulata</i> Brun-----	--	--	--	--	--	--	.12	--	--	--	--	
<i>Dissosteira carolina</i> L-----	--	2.06	--	--	--	--	.60	2.49	2.59	12.04	.22	
<i>Drepanopterna femoratum</i> Scudd-----	--	1.03	--	--	--	1.51	5.15	.13	.26	--	.11	
<i>Encyrtolophus costalis</i> Scudd-----	1.40	--	--	--	--	--	--	--	2.64	3.70	--	
<i>Gomphoceris clavatus</i> Thos-----	--	--	--	--	--	--	--	--	.05	--	--	
<i>Hadrotettix trifasciatus</i> Say-----	--	--	--	--	--	.25	--	--	--	--	--	
<i>Hesperovettix viridis pratensis</i> Scudd	--	--	--	--	--	--	.12	--	--	--	--	
<i>Hesperovettix viridis</i> Thos-----	--	--	--	--	--	.50	.60	.13	.05	--	--	
<i>Melanoplus ambustipennis</i> Dodge-----	21.68	1.03	--	28.72	--	8.04	1.56	.66	--	2.78	5.07	
<i>Melanoplus divitatus</i> Say-----	2.10	27.04	--	--	--	5.45	9.47	4.99	3.85	3.70	.55	
<i>Melanoplus howditchi</i> Scudd-----	--	--	--	--	--	--	--	--	--	--	.22	
<i>Melanoplus dawsoni</i> Scudd-----	--	--	--	--	--	--	.96	--	1.11	.46	--	
<i>Melanoplus citherencialis</i> Thos-----	.70	--	--	--	3.31	6.98	.50	1.20	--	--	.86	
<i>Melanoplus femur-rufum</i> DeG-----	15.58	36.08	2.78	--	.83	.17	10.30	9.35	37.53	39.58	23.61	12.22
<i>Melanoplus glaucus</i> Scudd-----	3.50	--	--	--	.83	--	.50	1.32	--	2.69	3.70	.33
<i>Melanoplus infanticus</i> Scudd-----	1.40	1.03	--	--	--	1.55	2.76	5.76	--	1.06	--	.22
<i>Melanoplus mexicanus</i> Sauss-----	23.78	12.37	30.55	46.27	79.06	39.20	31.41	16.40	30.50	33.80	72.25	
<i>Melanoplus occidentalis</i> Thos-----	--	--	--	--	--	--	.24	.13	--	--	--	
<i>Melanoplus packardii</i> Scudd-----	9.09	10.31	29.17	1.65	--	3.01	2.16	22.44	5.75	6.48	1.43	

Table 2 (cont'd.)

Species	North Dakota			South Dakota			Wyoming			Montana		
	1-E	3-SW	1-NE	2-SE	3-S	4-W	1-E	2-W	1-W	2-NE	3-E	
Mesoterges kiowa Thos-	.70	--	4.16	--	--	.50	1.92	--	.26	.46	.11	
Metator pardalinus Sauss-	--	--	--	--	--	--	.84	--	.11	.46	.11	
Upeia obscura rhos-	--	1.03	--	--	--	--	.60	.13	--	--	.11	
Pardalophora haldemani scuda-	--	--	1.39	--	--	--	--	--	--	--	--	
Phidiotroma quacrimaculatum rhos-	--	--	--	--	--	1.26	--	--	.21	--	--	
Phoetaliotes neurascentis rhos-	--	4.12	--	--	--	1.00	4.56	--	.53	3.24	.11	
Spharagemon collare scuda-	.70	--	5.56	5.79	1.55	1.00	.12	.39	.32	.46	--	
Spharagemon equale Say-	--	--	--	--	--	1.00	2.88	--	1.11	.46	--	
Trimerotropis pistrinaria Sauss-	--	--	--	--	--	--	--	--	--	--	.11	
Trimerotropis pallidipennis Burm-	--	--	--	--	--	--	--	--	.58	--	.22	

Table 3.--Distribution of grasshopper species in corn (651 specimens)

Species	North Dakota			South Dakota			Montana
	1-A	2-M	3-S	1-M	2-S	3-S	3-S
Aeneotettix aegeus Caud-	10.31	--	5.52	21.66	--	10.06	--
Auphitornis bicolor Rhos--	--	--	.32	--	--	--	--
Arphia pseudonietana Rhos--	.94	5.55	.65	--	--	--	--
Bruneria brunnea Rhos--	--	--	--	1.67	--	--	--
Chamaea pelucida Caud--	13.61	--	2.27	--	--	--	1.16
Chorthippus curtipennis Harr--	.94	--	--	--	--	--	--
Dissosteira carolina L--	1.41	11.11	1.62	1.67	1.06	--	1.16
Drepanopterna femoralis Caud--	--	--	.32	--	--	--	--
Encyrtolophus cosalis Caud--	4.22	--	12.01	--	--	--	--
Gonophocerus clavatus Rhos--	.47	--	--	--	--	--	--
Hesperotettix viridis Rhos--	--	5.55	--	--	--	--	--
Hypochlora alba Dodge--	--	16.67	--	--	--	--	--
Melanoplus angustipennis Dodge--	.47	16.67	--	13.33	7.45	16.66	5.81
Melanoplus vittatus Say--	.47	--	.65	1.67	8.51	0.33	1.16
Melanoplus dawsoni Caud--	2.35	--	6.02	--	--	--	--
Melanoplus differentialis Rhos--	--	--	--	11.67	48.94	2.70	--
Melanoplus femur-rubrum Dej--	22.54	--	10.71	--	--	1.39	17.44
Melanoplus glaberrimus Caud--	.94	16.67	10.71	--	--	--	--
Melanoplus inaequalis Caud--	.94	5.55	.32	--	--	1.39	--
Melanoplus mexicanus Caud--	25.81	22.22	14.61	46.06	5.32	50.00	65.75
Melanoplus packardii Caud--	2.82	--	1.62	--	--	--	5.81
Mesocriceta kiowa Rhos--	.94	--	3.57	--	2.53	1.39	--
Metator parvulus Caud--	.47	--	.97	--	--	--	--
Opaeus obscura Rhos--	--	--	3.57	--	--	--	--
Orphulella pallens Burr--	.47	--	--	--	--	--	--
Orphulella speciosa Caud--	.47	--	1.30	1.67	--	--	--
Phyllotettix quadrimaculatus Rhos--	--	--	1.75	--	3.17	--	--
Phonolutes nebrascensis Rhos--	.94	--	12.01	--	--	--	1.16
Spharagemon collaris Caud--	.47	--	.65	--	--	--	2.52

Table 4.--Distribution of grasshopper species in flax (530 specimens)

species	North Dakota			Wyoming	
	1-B	2-N	3-SW	1-B	
<i>Ageneotritix deorum</i> Scudd	1.53		2.65	12.00	
<i>Arphia pseudonietana</i> Rhos					
<i>Brunneria orninea</i> Rhos	.31				
<i>Samula pellucida</i> Scudd	29.45		5.96	16.00	
<i>Dissosteira carolina</i> L	.92	3.57	6.62		
<i>Encyptolophus costalis</i> Scudd	2.15		4.64		
<i>Melanoplus angustipennis</i> Dodge		1.14			
<i>Melanoplus vivitatus</i> Say	6.15	1.14			
<i>Melanoplus femur-rubrum</i> DeG	24.23	25.00	19.87	44.00	
<i>Melanoplus lausoni</i> Scudd	3.37	7.14	1.99	4.00	
<i>Melanoplus keeleri</i> Burdus Dodge			1.32		
<i>Melanoplus mexicanus</i> Sauss	26.99	37.29	41.06	16.00	
<i>Melanoplus packardii</i> Scudd	3.60	10.71	3.97		
<i>Mestobregma kiowa</i> Rhos			.66		
<i>Metator pardalinus</i> Sauss				4.00	
<i>Opeia obscura</i> Rhos			1.32		
<i>Orthocentrus speciosa</i> Scudd	.61				
<i>Thesaciliotes neovascensis</i> Rhos			8.61	4.00	
<i>Spharagema collaris</i> Scudd			1.32		

Table 5.--Distribution of grasshopper species along roadsides (4, 103 specimens/

[illegible]

Table 6.--Distribution of grasshopper species in weedy fields and pastures (4,035 specimens)

Species	North Dakota			South Dakota			Montana		
	1-E	2-NW	3-SW	1-NE	2-SE	3-C	2-NE	3-E	
Aeoloplus turnbulli Thos-----	--	--	--	--	--	--	--	.32	1.82
Ageneotettix deorum Scudd-----	8.91:	1.31:	10.16:	47.88:	35.02:	7.75:	4.87:	20.00	
Aulocara eliotti Thos-----	--	--	.28:	--	--	.24:	--	--	--
Amphitornus bicolor Thos-----	--	--	.21:	1.41:	.68:	--	--	--	--
Arphia pseudonietana Thos-----	.56:	--	.07:	--	--	.12:	1.95:	--	--
Bruncia brunnea Thos-----	--	--	.14:	1.41:	.92:	.71:	--	--	--
Camnula pellucida Scudd-----	15.88:	3.19:	1.48:	--	--	.12:	.65:	3.63	--
Chorthippus curtipennis Harr-----	1.11:	--	--	--	--	--	--	--	--
Dissosteira carolina L-----	11.70:	.72:	1.34:	--	.34:	1.07:	--	--	--
Drepanopterna femoratum Scudd-----	--	--	.21:	--	.68:	1.07:	1.62:	1.82	--
Derotmena haydenii Thos-----	--	--	--	--	.68:	.12:	--	--	--
Encoptolophus costalis Scudd-----	3.90:	.58:	2.96:	--	--	1.19:	2.92:	--	--
Hadrotettix trifasciatus Say-----	--	.14:	--	--	.34:	.24:	--	--	--
Hesperotettix viridis Thos-----	--	--	.07:	--	--	.36:	--	--	--
Hippiscus rugosus Scudd-----	--	--	.14:	--	.34:	--	--	--	--
Hypochlora alba Dodge-----	.28:	--	.70:	--	--	--	--	--	--
Melanoplus angustipennis Dodge-----	2.78:	.43:	5.29:	4.23:	16.77:	5.48:	--	--	--
Melanoplus altitudinum Scudd-----	--	--	--	--	--	--	.32:	--	--
Melanoplus bivittatus Say-----	6.68:	.87:	.99:	2.82:	3.03:	1.19:	--	--	--
Melanoplus bowditchi Scudd-----	.56:	--	--	--	--	--	--	--	--
Melanoplus dawsoni Scudd-----	3.06:	.58:	1.41:	--	--	--	.65:	--	--
Melanoplus differentialis Thos-----	--	--	.78:	--	29.29:	5.12:	--	--	--
Melanoplus femur-rubrum DeG-----	--	8.13:	8.40:	--	2.36:	--	20.78:	--	--
Melanoplus gladstoni Scudd-----	1.39:	.43:	3.46:	--	.34:	--	1.82:	--	--
Melanoplus infantilis Scudd-----	1.95:	.58:	.85:	--	--	.24:	5.84:	3.63	--
Melanoplus keeleri luridus Dodge-----	.28:	--	.21:	--	--	--	--	--	--
Melanoplus lakinus Scudd-----	--	--	--	--	--	.12:	--	--	--
Melanoplus mexicanus Sauss-----	25.63:	79.83:	17.78:	35.21:	11.11:	64.72:	12.46:	45.45	--
Melanoplus packardii Scudd-----	4.46:	1.31:	1.48:	--	--	5.24:	1.62:	5.45	--

Table 6. (Cont'd.)

Species	North Dakota			South Dakota			Montana		
	1-E	2-NW	3-SW	1-NE	2-SE	3-C	2-NE	3-E	
Mesocuregma kiowa Thos----	2.51:	.58:	2.12:	5.63:	2.56:	1.07:	2.72:	12.73	
Metator parvalinus Sauss----	--:	--:	1.27:	--:	--:	.12:	--:	--:	
Opelia obscura Thos----	.56:	--:	3.60:	--:	.68:	--:	27.92:	1.82	
Orphulella speciosa Cuvud----	.83:	--:	.49:	--:	--:	--:	--:	--:	
Paracalophora haldemani Cuvud----	--:	--:	--:	--:	--:	.12:	--:	--:	
Phliostrota quadrimaculata Thos----	--:	--:	24.35:	1.41:	.34:	.48:	3.90:	--:	
Phoetarellus neurasceus Thos----	3.06:	.29:	9.24:	--:	.68:	.71:	10.71:	--:	
Spharagemon collaris Scud----	3.70:	.87:	.35:	--:	--:	1.07:	--:	1.82	
Spharagemon equale Say----	--:	.14:	.14:	--:	--:	1.07:	.32:	--:	
Trimerotropis pistrinaria Sauss----	--:	--:	--:	--:	--:	.24:	--:	--:	

Table 7.--Distribution of Grasshopper Species in Russian-thistle areas (5,338 specimens)

Species	North Dakota				South Dakota				Montana
	1-N	2-N	3-N	4-N	1-S	2-S	3-S	4-S	1-M
<i>Aeoloplus turnoulii</i> Fros	---	---	.16	---	---	---	1.30	.25	---
<i>Ageneotettix deorum</i> Scudd	6.10	2.74	2.70	9.86	---	---	7.97	3.94	---
<i>Aulocara ellioti</i> Fros	---	---	---	---	---	---	.46	---	---
<i>Amphitornus bicolor</i> Fros	---	.08	---	---	---	---	.04	---	---
<i>Arphia pseudonietana</i> Fros	---	.08	---	---	---	---	.04	.25	---
<i>Brachystola magna</i> Gir	---	---	---	---	---	---	.04	---	---
<i>Bruneria brunnea</i> Fros	---	---	---	---	---	---	.08	.86	---
<i>Camnula pellucida</i> Scudd	4.88	3.96	3.17	---	---	---	.42	.12	---
<i>Derotmena haydeni</i> Fros	---	---	---	---	---	---	.04	---	---
<i>Dissosteira carolina</i> L	20.73	1.14	.16	---	---	---	1.43	2.34	---
<i>Drepanopterna fescutatum</i> Scudd	---	---	---	2.82	---	---	.29	---	---
<i>Encyrtolophus costalis</i> Scudd	---	.61	3.17	2.82	---	---	.17	.99	---
<i>Hadrotettix trifasciatus</i> Say	---	---	---	---	---	---	.29	.31	---
<i>Hesperotettix viridis</i> Fros	---	1.67	---	---	---	---	.04	---	---
<i>Hippiscus rugosus</i> Scudd	---	---	---	---	---	---	.04	---	---
<i>Hypochlora alba</i> Dodge	---	---	.16	---	---	---	---	---	---
<i>Melanoplus albidinervis</i> Scudd	---	---	---	---	---	---	.63	---	---
<i>Melanoplus angustipennis</i> Dodge	---	.84	4.76	---	---	---	3.06	7.03	---
<i>Melanoplus divittatus</i> Say	3.66	1.07	1.59	2.82	---	---	2.31	1.73	---
<i>Melanoplus confusus</i> Scudd	---	---	---	---	---	---	---	.12	---
<i>Melanoplus dawsoni</i> Scudd	1.22	.23	1.75	---	---	---	.25	.62	---
<i>Melanoplus differentialis</i> Fros	---	---	1.27	---	---	---	3.65	7.52	---
<i>Melanoplus femur-rubrum</i> Dodge	21.95	10.89	10.95	---	---	---	1.51	6.26	---
<i>Melanoplus gladstoni</i> Scudd	1.22	1.52	1.90	---	---	---	.46	2.47	---
<i>Melanoplus infantilis</i> Scudd	2.44	.61	.48	---	---	---	.08	.86	---
<i>Melanoplus lakinius</i> Scudd	---	---	---	---	---	---	2.18	---	---
<i>Melanoplus mexicanus</i> Faus	21.95	68.85	55.40	67.60	---	---	63.02	43.16	64.20
<i>Melanoplus packardii</i> Scudd	12.19	2.66	2.06	8.44	---	---	4.15	8.38	33.33
<i>Mestrobregma kiowa</i> Fros	---	.46	.63	1.41	---	---	1.42	1.11	---
<i>Metator pardalinus</i> Faus	---	.23	.16	1.41	---	---	.17	---	---
<i>Opeia obscura</i> Fros	---	.13	1.45	---	---	---	.29	.12	---
<i>Orphulella speciosa</i> Scudd	---	---	1.11	---	---	---	---	.12	---
<i>Pardalophora haldemanni</i> Scudd	---	---	---	---	---	---	.04	---	---
<i>Phliostrota quadrimaculatum</i> Fros	---	---	.32	---	---	---	.21	.37	---
<i>Photaltides neorascensis</i> Fros	---	1.52	6.03	---	---	---	1.68	7.87	---
<i>Spharagemon collare</i> Scudd	3.66	.61	.63	---	---	---	.71	.74	2.36
<i>Spharagemon equale</i> Say	---	.08	---	2.82	---	---	.71	.37	---

Table 6.--Distribution of grasshopper species in plains grassland (7,511 specimens)

Species	North Dakota			South Dakota			Wyoming			Montana		
	1-E	2-NW	3-SW	1-NE	3-C	4-W	1-E	2-W	1-W	2-NE	3-E	
<i>Acrolophus hirtipes</i> Say	--	--	--	--	--	--	.26	--	--	--	--	--
<i>Aeoloplus turnbullii</i> Thos	--	--	.07	--	--	--	--	--	--	--	.09	.39
<i>Aerochoreutes carlinianus</i> Thos	--	--	--	--	--	--	--	--	.50	--	--	--
<i>Ageneotettix deorum</i> Scudd	--	5.65:19.71	42.86:29.70:30.50:43.73:28.57	5.53	6.22	8.88	--	--	--	--	--	--
<i>Amphitornus bicolor</i> Thos	--	1.23:1.46	4.76:1.51	.81	.17	.62	.57	--	--	--	--	--
<i>Arphia pseudonietana</i> Thos	--	.25	4.76	.50	.54	.43	.76	1.00	--	--	--	--
<i>Aulocara ellioti</i> Thos	--	--	--	.50	.54	.43	.76	1.00	--	--	--	--
<i>Bruneria brunnea</i> Thos	--	--	--	.50	.54	.43	.76	1.00	--	--	--	--
<i>Camnula pellucida</i> Scudd	45.45:17.44	1.96	2.38	.56	2.02	.60	.53	1.12	.06	--	--	--
<i>Chorthippus curtipennis</i> Harr	--	7.36	--	.05	--	--	--	--	--	--	--	--
<i>Cordillacris crenulata</i> Brun	--	--	.29	.05	1.08	.17	.09	--	--	--	--	--
<i>Dissosteira carolina</i> L	--	1.47	.66	.45	.13	.09	.36	--	--	--	--	--
<i>Drepanopterna femoratum</i> Scudd	--	--	8.57	2.38	8.45:14.44	7.97	2.38	2.51	3.46	11.71	--	--
<i>Encoptolophus costalis</i> Scudd	3.03	9.34	2.56	--	2.07	2.70	.17	--	2.01	7.02	1.13	--
<i>Gomphoceris clavatus</i> Thos	3.03	.25	.07	--	--	--	--	--	--	--	--	--
<i>Hadrotettix trifasciatus</i> Say	--	--	--	.67	.09	--	.50	--	--	--	--	--
<i>Hesperotettix viridis pratensis</i> Scudd	--	--	--	--	.26	--	--	--	--	--	--	--
<i>Hesperotettix viridis</i> Thos	--	.25	.74	--	--	1.54	3.17	--	--	--	--	.39
<i>Hippiscus rugosus</i> Scudd	--	--	--	.05	--	--	--	--	--	--	--	--
<i>Hypochlora alba</i> Dodge	--	.49	--	--	--	--	--	--	--	--	--	--
<i>Melanoplus altitudinum</i> Scudd	--	--	--	--	--	--	--	--	--	--	--	.94
<i>Melanoplus angustipennis</i> Dodge	--	--	.07	2.38	.39	.13	2.83	.79	--	1.33	--	--
<i>Melanoplus oivittatus</i> Say	--	--	.14	--	.11	.13	1.20	--	--	.09	--	--
<i>Melanoplus powditchi</i> Scudd	--	--	--	--	--	3.34	--	--	--	--	--	.19
<i>Melanoplus confusus</i> Scudd	--	--	--	--	--	.09	--	--	--	--	--	.39
<i>Melanoplus dawsoni</i> Scudd	12.12:10.81	.14	--	.28	--	.34	--	1.00	--	.36	--	--
<i>Melanoplus differentialis</i> Thos	--	--	1.18	.22	.13	.27	.69	1.59	4.52	2.75	1.13	--
<i>Melanoplus femur-rubrum</i> Deg	--	3.19	1.85	2.38	.11	.27	.69	1.59	4.52	2.75	1.13	--
<i>Melanoplus fluvialis</i> Brun	--	--	--	--	--	--	.43	--	--	--	--	--
<i>Melanoplus gladstoni</i> Scudd	3.03	1.97	--	--	.22	--	.86	--	4.52	1.86	--	--
<i>Melanoplus infantilis</i> Scudd	3.03	2.70	4.14	--	.22	.54	5.92	6.35	25.63	9.68	3.97	--

Table b. (cont'd.)

Species	North Dakota			South Dakota			Wyoming			Montana		
	1-E	2-M	3-SW	1-NE	3-C	4-W	1-E	2-W	1-W	2-NE	3-E	
Melanoplus kennicottii Scudd	---	---	---	---	---	---	.09	---	---	---	---	---
Melanoplus mexicanus Sauss	-.25	.31	4.65	2.38	10.96	1.48	12.60	7.14	7.54	21.48	44.98	---
Melanoplus occidentalis Thos	---	---	---	---	---	---	.34	.79	1.00	---	---	---
Melanoplus packardii Scudd	---	2.21	.30	---	.50	.40	1.29	4.76	3.52	1.33	3.40	---
Melanoplus punctulatus Scudd	---	---	---	---	---	---	.09	---	---	---	---	---
Mermiria maculipennis McLungi Rehn	---	---	---	---	---	---	---	---	---	.09	1.32	---
Mermiria neomexicana Thos	---	---	---	---	---	---	---	---	---	---	.19	---
Mestobregma kiowa Thos	.27	.27	2.46	10.12	21.43	26.96	25.78	3.34	---	12.56	7.28	4.35
Metator pardalinus Sauss	3.03	---	.89	---	2.40	.40	.77	---	1.00	---	1.13	---
Opeia obscura Thos	---	.74	24.00	---	2.52	2.43	3.17	---	.50	9.95	3.97	---
Orphulella pelidna Burm	---	---	.14	---	.11	.13	---	---	---	---	---	---
Orphulella speciosa Scudd	---	---	.37	2.38	.22	1.21	---	---	---	.18	3.02	---
Paropcmala wyomingensis Thos	---	---	---	---	---	---	.09	---	---	---	---	---
Philobostroma quadrimaculatum Thos	---	2.70	15.36	---	6.10	13.49	3.34	1.59	4.02	17.23	.94	---
Phoetaliotes nebrascensis Thos	---	3.93	.52	---	1.34	.27	---	16.67	---	6.66	2.68	---
Pseudepcmala brachyptera Scudd	---	---	---	---	---	---	.09	---	---	---	---	---
Spharagemon collare Scudd	---	.25	---	---	.17	.13	.94	---	2.01	.27	.39	---
Spharagemon equale Say	---	---	---	---	.34	.13	.69	---	4.02	.18	.94	---
Trimerotropis pistrinaria Sauss	---	---	---	---	.05	---	.09	---	---	---	---	---
Trimerotropis sparsa Thos	---	---	---	---	---	---	---	---	---	---	.19	---
Trimerotropis gracilis sordida Walk	---	---	---	---	---	---	---	---	---	---	---	---

Table 9.--Distribution of grasshopper species in low-mountain grassland (870 specimens)

Species	South Dakota	Wyoming	Montana
	4-W	1-E : 2-W	1-W : 2-NE
Ageneotettix deorum Scudd-----	26.26	6.60 : 2.78	48.94 : 1.61
Amphitornus bicolor Thos-----	.95	: .24 : --	-- : 3.22
Arphia pseudonietana Thos-----	.95	: .98 : --	-- : --
Aulocara ellioti Thos-----	.32	: 3.18 : --	4.25 : --
Boopemon nubilum Say-----	--	: 1.22 : --	-- : --
Bruneria brunnea Thos-----	--	: 3.67 : --	-- : 3.22
Camula pellucida Scudd-----	32.90	: 8.56 : 61.11	-- : 25.81
Cordillacris crenulata Brun-----	1.90	: .24 : --	-- : --
Dissosteira carolina L.-----	--	: .24 : --	-- : --
Drepanopterna femoratum Scudd-----	5.70	: 3.91 : --	-- : --
Encyptolophus costalis Scudd-----	--	: .73 : --	-- : 8.06
Hesperotettix viridis Thos-----	.32	: -- : --	6.38 : --
Melanoplus angustipennis Dodge-----	--	: .73 : --	-- : --
Melanoplus bivittatus Say-----	2.33	: 3.67 : 2.78	-- : --
Melanoplus dawsoni Scudd-----	2.22	: 1.22 : --	-- : 12.90
Melanoplus femur-rudrum DeG-----	--	: 4.40 : --	-- : --
Melanoplus gladstoni Scudd-----	--	: .49 : --	-- : 3.22
Melanoplus infantilis Scudd-----	.95	: .98 : 2.78	8.51 : 14.52
Melanoplus keeleri luridus Dodge-----	--	: .49 : --	-- : --
Melanoplus mexicanus Sauss-----	4.43	: 43.28 : 8.33	27.66 : 20.97
Melanoplus packardii Scudd-----	--	: 2.69 : 22.22	-- : --
Metodregma kiowa Thos-----	8.23	: 2.44 : --	-- : --
Metator pardalinus Sauss-----	--	: .49 : --	-- : --
Opeia obscura Thos-----	--	: .90 : --	-- : --
Orphulella pelidna Burm-----	.32	: -- : --	-- : --
Orphulella speciosa Scudd-----	--	: .24 : --	-- : --
Phibostroma quadrimaculatum Thos-----	9.18	: .49 : --	-- : 1.61
Phoetaliotes nebrascensis Thos-----	2.21	: 3.71 : --	2.13 : --
Spharagemon collare Scudd-----	.63	: 1.95 : --	-- : --
Spharagemon equale Say-----	--	: 1.95 : --	2.13 : 1.61

Table 10.--Distribution of grasshopper species in pasture grassland (963 specimens)

Species	North Dakota				South Dakota				Wyoming	
	3-SW	1-NE	2-SE	3-C	4-W	1-E				
<i>Ageneotettix deorum</i> Scudd-----	7.59	:23.83	:39.31	:21.05	--	:			26.87	
<i>Amphitornus oicolor</i> Thos-----	1.26	:1.07	:1.73	:7.89	--	:			1.49	
<i>Arpha pseudonietana</i> Thos-----	1.26	:1.42	--	--	--	:			1.49	
<i>Bruneria brunnea</i> Thos-----	--	:.36	:3.89	--	--	:			--	
<i>Camnula pellucida</i> Scudd-----	8.86	:2.13	--	--	--	:			--	
<i>Dissosteira carolina</i> L-----	3.80	--	--	--	--	:			--	
<i>Drepanopterna femoratum</i> Scudd-----	--	:1.07	:1.73	--	--	:			14.92	
<i>Encyptolophus costalis</i> Scudd-----	5.07	--	--	:1.31	--	:			--	
<i>Hadrotettix trifasciatus</i> Say-----	--	--	:.65	--	--	:			--	
<i>Hesperotettix viridis</i> Thos-----	1.26	--	--	--	--	:			--	
<i>Hippiscus rugosus</i> Scudd-----	--	--	:.21	--	--	:			--	
<i>Hypochloræ alba</i> Dodge-----	1.26	--	--	--	--	:			--	
<i>Melanoplus angustipennis</i> Dodge-----	6.33	:.72	--	--	--	:			--	
<i>Melanoplus divittatus</i> Say-----	1.26	--	--	--	--	:			7.46	
<i>Melanoplus differentialis</i> Thos-----	1.26	--	--	--	--	:			--	
<i>Melanoplus femur-rubrum</i> Deg-----	12.66	--	--	--	--	:			23.88	
<i>Melanoplus gladstoni</i> Scudd-----	6.33	--	--	--	--	:			--	
<i>Melanoplus infantilis</i> Scudd-----	1.26	--	--	--	--	:			--	
<i>Melanoplus mexicanus</i> Sauss-----	22.79	:2.13	:1.73	:15.79	--	:			7.46	
<i>Merimria maculipennis</i> macclungi Rehn--	--	--	--	:1.31	--	:			--	
<i>Mestobregma kiowa</i> Thos-----	1.26	:58.01	:41.68	:46.05	--	:			2.98	
<i>Melanoplus packardii</i> Scudd-----	5.07	--	--	--	--	:			13.43	
<i>Metator parcalinus</i> Sauss-----	--	:.72	--	--	--	:			--	
<i>Opeia obscura</i> Thos-----	2.53	:1.78	:1.94	--	--	:			--	
<i>Orphulella speciosa</i> Scudd-----	--	:3.91	--	:1.31	--	:			--	
<i>Phibostroma quadrimaculatum</i> Thos-----	--	:2.13	:7.13	:5.26	--	:			--	
<i>Phoetaliotes nebrascensis</i> Thos-----	8.86	--	--	--	--	:			--	
<i>Spharagemon collare</i> Scudd-----	--	:.72	--	--	--	:			--	

DOMINANT SPECIES BY STATES

Only a few of the most important species, selected because of their greater abundance and economic importance, will be discussed.

North Dakota

The dominant and most important grasshoppers in this State were Melanoplus mexicanus Sauss. and Camnula pellucida Scudd. The former was abundant in the western part of the State, reaching its peak in the northwestern district (district 2) where it composed 64.8 percent of the total number of grasshoppers collected in small grain. It was also a major species in flax (27 to 41 percent), abundant in corn (14 to 26 percent), and numerous in grasslands (14 to 25 percent). Camnula pellucida was most abundant in eastern and northeastern North Dakota (district 1), where it formed over half the grasshopper population along roadsides (77.6 percent) and in small grain (54 percent). Although abundant in the middle and western portions of the State, it constituted less than 10 percent of the total number of grasshoppers collected. Melanoplus femur-rubrum De G. was next in abundance in cropped fields. In alfalfa it composed from 15 to 36 percent of the total number of grasshoppers, in flax 20 to 25 percent, and was numerous in corn and small grain. M. packardii Scudd. and Ageneotettix deorum Scudd. were also fairly abundant throughout the entire State.

Two species of grasshoppers of major importance in past outbreaks have now greatly decreased in numbers. These are Melanoplus bivittatus Say and M. differentialis Thos. M. bivittatus was most abundant in the eastern part of the State. M. differentialis, formerly numerous in the southern and southwestern portions, has almost disappeared. This change is probably due to recent extreme heat and drought. Eggs of M. differentialis have been known to dry out under such circumstances, possibly because they are laid in the crowns of grass clumps close to the soil surface. Both of these species have a distinct preference for succulent food and cannot live through extreme drought.

In the grasslands Ageneotettix deorum Scudd., Mestobregma kiowa Thos., Opeia obscura Thos., Phliobostroma quadrimaculatum Thos., Melanoplus infantilis Scudd., and Encoptolophus costalis Scudd. were abundant. Together with M. mexicanus and Camnula pellucida they were the species of economic importance in the range and pasture lands.

South Dakota

Most of the crops in South Dakota were destroyed by drought and were replaced by Russian-thistle. In the small grain that was left Melanoplus mexicanus was the dominant species, ranging from 24 percent of the total population in the northeastern part (district 1) to 60 percent in the central part (district 3). No other species was nearly so abundant. In alfalfa in the central part (district 3) and the western part (district 4), it constituted 79 percent of the total number. Melanoplus bivittatus and M. differentialis, which were responsible in 1931 for the destruction of crops in a 30,000-square mile area ran only from 2 to 8 percent in all but the southeastern part

(district 2). The great hordes of these grasshoppers have disappeared over the greater part of the State. Melanoplus differentialis was abundant, however, in the southeastern district (district 2) in corn and weedy pastures and along roadsides. It comprised from 29 to 49 percent of the total number of grasshoppers collected in these habitats. Over most of the State Ageneotettix deorum was much more abundant than either M. differentialis or M. bivittatus, ranking next to M. mexicanus. Melanoplus packardii was fairly numerous and generally distributed. Camnula pellucida occurred in the northeastern district (district 1) and at the first of the season was abundant and dominant in the western (district 4) or mountain areas. Vigorous control measures reduced its numbers by 80 percent in most of the western area. Melanoplus femur-rubrum did not occur abundantly and was found mostly in alfalfa.

In the grasslands, Ageneotettix deorum, Mestobregma kiowa, Phlibostroma quadrimaculatum, and Drepanopterna femoratum Scudd. were most abundant. Melanoplus mexicanus was numerous in the central portion and Camnula pellucida was dominant in the low-mountain grassland. Mestobregma kiowa was dominant in the native sod pastures, making up from 41 to 58 percent of the total population. In pastures suffering from severe drought, where the grass was burned up and overgrazed, this species was fairly abundant (8 per square yard) even though the foliage seemed insufficient to support the most meager population. M. kiowa has been called the pasture grasshopper and is rightly named.

In the thousands of acres of Russian-thistle M. mexicanus was by far the most abundant species, constituting from 43 to 67 percent of the total grasshopper population. The next in abundance here was Ageneotettix deorum making up from 4 to 10 percent.

Wyoming

In small grains Melanoplus mexicanus was dominant at 18 percent; followed closely by Ageneotettix deorum, at 15 percent; M. bivittatus, 13 percent; M. femur-rubrum, 11 percent; and Aulocara ellioti Thos., 11 percent. Earlier in the season, Camnula pellucida was abundant, especially in the northeastern part. There was a terrific slaughter of this particular species, together with M. mexicanus and M. bivittatus, in the poisoned-bait campaigns. Observers recorded, time and again, the finding of countless numbers of dead grasshoppers on the ground. This disturbed the normal balance for the different species here, as well as in all other districts where intensive control measures had been in force.

Alfalfa is an important forage crop in Wyoming. Melanoplus mexicanus was the species most numerous in this crop at 31 percent in the eastern district (district 1), and M. femur-rubrum at 37 percent was dominant in the western district (district 2). Ageneotettix deorum ranked next, at 13 percent in the eastern part, and M. packardii at 22 percent in the western part. Camnula pellucida formed about 2 percent of the population in the eastern part and jumped to 13 percent in the western district.

Wyoming is an important stock-raising State, and large grazing areas

have been seriously damaged by grasshoppers. A great deal of interest has been aroused regarding the control of grasshoppers and the kinds found in grazing lands. From collections made here, it seems that Ageneotettix deorum was most abundant, running from 28 to 44 percent of the total population in the open range of the plains and 27 percent in the pastures.

Melanoplus mexicanus was the most abundant in the low-mountain grasslands at 43 percent. Other important species of the grasslands were Camnula pellucida, M. packardii, M. infantilis, and Drepanopterna femoratum. Of course, there were numerous other kinds of lesser importance, but all contributed their part to the havoc wrought on the grazing land.

Montana

It was in this State, the old home of Melanoplus spretus Thos., that M. mexicanus reached its greatest abundance and its highest rank over other species. In the great wheat areas it constituted from 47 to 70 percent of the total grasshopper population in small grains. The species next in rank were M. femur-rubrum and M. packardii, both at 4 to 9 percent. M. infantilis was next, ranging from 2 to 5 percent. M. mexicanus was also the most abundant species in alfalfa and sweetclover, ranging from 30 percent in the counties bordering the mountains to 72 percent in the eastern counties south of the Missouri River. In these crops M. femur-rubrum ran from 12 percent of the total population in the eastern district (district 3) to 39 percent in the western district (district 1).

In the severe 1923 outbreak Melanoplus bivittatus was abundant in alfalfa and sweetclover all along the Yellowstone Valley. This year it composed only 0.5 percent of the populations in these crops. In the irrigated valleys of the mountain district it increased to 3.8 percent.

Montana, like Wyoming, has large grazing tracts, which have been severely damaged by grasshoppers. On these grazing lands, Melanoplus mexicanus was most numerous, ranging from 7 percent in the mountain counties to 45 percent of the total population in the eastern districts. Melanoplus infantilis was next in importance, its abundance ranging from 4 percent in the eastern part to 26 percent in the mountain district. Other abundant grasshoppers were Ageneotettix deorum, at 5 to 9 percent; Drepanopterna femoratum, 2 to 12 percent; Mestobregma kiowa, 4 to 13 percent; and Philibostroma quadrimaculatum, 1 to 17 percent. The last was most abundant on the grazing lands in the northern wheat district. Other species found were Opeia obscura, Phoetaliotes nebrascensis Thos., Melanoplus packardii, and Encoptolophus costalis Scudd. Camnula pellucida was very abundant in the mountain districts, making up from 12 to 26 percent of the total number.

In Southeastern Montana Melanoplus confusus Scudd. was dominant on the range land early in the season. It had reached its maturity early in May and by the middle of July had practically disappeared. It must, however, be considered as an important range species.

SUMMARY OF THE DISTRIBUTION OF GRASSHOPPERS FOUND IN
TYPICAL ENVIRONMENTS

In table 11 is given the distribution of species by percentages of the total numbers collected in each of the 10 typical environments. This table summarizes the distribution of the species through all of the habitats. This facilitates the making of direct comparisons between these environments for any one species.

Table 11.--Distribution of 44,600 specimens collected in Montana, North Dakota, South Dakota, and Wyoming by species, expressed in percentage of total number collected in each habitat

Species	Small grains:	Legumes:	Corn:	Flax:	Road-side:	Weedy patches:	Russian thistle:	Plains grass:	Low-mountain grass:	Pasture grass:
<i>Acridophtus hirtipes</i> Say	0.01	0.03	0.03	0.03	0.05	0.64	0.05	0.04	0.04	0.04
<i>Aeoloplus turnbulli</i> Thos	0.01	0.03	0.03	0.03	0.05	0.64	0.05	0.04	0.04	0.04
<i>Aerostoreus carlinianus</i> Thos	0.01	0.03	0.03	0.03	0.05	0.64	0.05	0.04	0.04	0.04
<i>Aeneocleis decora</i> Scudd	3.47	4.57	3.63	2.26	7.57	10.26	5.38	23.15	15.56	29.40
<i>Amphitornus bicolor</i> Thos	2.29	0.07	0.12	0.12	0.41	0.15	0.04	0.96	0.67	1.93
<i>Arphia pseudonietana</i> Thos	0.22	0.11	0.59	0.11	0.42	0.25	0.07	0.46	0.80	0.61
<i>Aulocara elliptici</i> Thos	0.18	0.61	0.11	0.11	0.02	0.15	0.21	0.12	0.04	0.04
<i>Brachystola magna</i> Gir	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
<i>Brunneria prunae</i> Thos	0.05	0.29	0.12	0.13	0.79	0.30	0.17	1.30	1.95	1.93
<i>Boopedon nubilum</i> Say	0.01	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
<i>Camula pellicida</i> Scudd	17.29	5.36	4.35	20.57	18.07	2.60	1.63	2.16	20.34	1.63
<i>Chloelitis conspersa</i> Harr	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
<i>Chorthippus curtipennis</i> Harr	0.17	0.05	0.23	0.01	0.01	0.10	0.01	0.41	0.01	0.01
<i>Jordallacris crenulata</i> Brun	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.21	0.80	0.01
<i>Disocostea carolina</i> L	2.68	1.85	1.53	2.64	3.98	1.88	1.61	0.40	0.11	0.30
<i>Drepanopterna femoratum</i> Scudd	0.57	1.02	0.12	0.12	0.90	0.49	0.17	7.60	3.91	2.14
<i>Derocera haydeni</i> Thos	0.01	0.01	0.01	0.01	0.01	0.07	0.02	0.01	0.01	0.01
<i>Encyrtolophus costalis</i> Scudd	1.36	1.00	0.40	2.64	0.85	1.96	0.79	2.96	0.92	0.91
<i>Gomphocerus clavatus</i> Thom	0.11	0.02	0.12	0.01	0.01	0.01	0.01	0.04	0.01	0.01
<i>Haurotetrix trifasciatus</i> Say	0.03	0.02	0.01	0.01	0.01	0.10	0.19	0.09	0.01	0.30
<i>Hesperotetrix viridis</i> Scudd	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.04	0.01	0.01
<i>Hesperotetrix viridis</i> Thos	0.16	0.16	0.12	0.01	0.30	0.10	0.43	0.47	0.46	0.10
<i>Hippiscus rugosus</i> Scudd	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
<i>Hypocloria alba</i> Dodge	0.10	0.01	0.35	0.01	0.30	0.07	0.02	0.01	0.10	0.10
<i>Melanoplus albivittatus</i> Scudd	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
<i>Melanoplus angustipennis</i> Dodge	0.97	3.03	4.23	0.38	3.04	4.19	3.63	0.78	0.57	0.71
<i>Melanoplus divitatus</i> Say	3.45	4.68	2.23	4.53	4.57	1.61	1.03	0.27	2.76	0.81
<i>Melanoplus bowmanii</i> Scudd	0.04	0.03	0.01	0.01	0.01	0.05	0.01	0.53	0.01	0.01
<i>Melanoplus communis</i> Scudd	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.04	0.01	0.01
<i>Melanoplus dawsoni</i> Scudd	0.53	0.54	3.05	0.01	0.13	0.92	0.49	0.86	2.30	0.01
<i>Melanoplus differentialis</i> Thos	1.27	0.61	6.46	0.01	6.74	3.47	2.92	0.28	0.01	0.10

Table 11.--Continued

Species	Small:	Grain:	Legumes:	corn:	Flax:	side:	weedy:	Russian:	Plains:	low moun-:	Pasture:
Melanoplus femur-rufum De---	9.46:	24.72:	11.40:	23.96:	4.53:	6.10:	6.24:	1.32:	2.07:	3.15:	
Melanoplus fluvialis Brun-----	---	---	---	---	---	---	---	---	.07:	---	---
Melanoplus gladstoni Scudd-----	1.24:	1.45:	7.28:	3.21:	.30:	1.46:	1.20:	.70:	.46:	.51	
Melanoplus infancilis Scudd-----	1.31:	1.54:	.59:	---	1.27:	1.11:	.41:	4.45:	2.41:	.10	
Melanoplus keeleri luridus Dodge----	---	---	---	.38:	---	.10:	---	---	.23:	---	
Melanoplus kennicottii Scudd-----	---	---	---	---	---	---	---	.01:	---	---	
Melanoplus lakinus Scudd-----	.02:	---	---	---	---	.02:	.97:	---	---	---	
Melanoplus mexicanus Sauss-----	43.00:	37.24:	26.79:	31.12:	31.62:	38.64:	59.93:	13.65:	25.28:	5.59	
Melanoplus occidentalis Thos-----	---	.05:	---	---	---	---	---	.09:	---	---	
Melanoplus packardii Scudd-----	4.01:	6.01:	1.80:	3.96:	6.46:	2.43:	4.59:	1.14:	2.16:	1.42	
Melanoplus punctulatus Scudd-----	---	---	---	---	---	---	---	.01:	---	---	
Melanoplus maculipennis maculipes Fehm-	.01:	---	---	---	---	---	---	.11:	---	.10	
Mestouregma kiowa Thos-----	1.25:	.52:	4.46:	.19:	3.19:	1.96:	1.01:	13.42:	4.14:	40.08	
Merimaria neomexicana Thos-----	---	---	---	---	---	---	---	.01:	---	---	
Metator parcalinus Sauss-----	.67:	.20:	.47:	.19:	.79:	.47:	.17:	1.01:	.23:	.20	
Upeia obscura Thos-----	1.10:	.14:	1.29:	.38:	.40:	3.51:	.35:	7.49:	.46:	1.63	
Orphulella peliana Burm-----	---	---	.12:	---	.02:	---	---	.07:	.11:	.11	
Orphulella speciosa Scudd-----	.29:	---	.70:	.38:	.19:	.25:	.15:	.49:	.11:	1.22	
Pardalophora haldemani Scudd-----	---	.02:	---	---	---	.02:	.02:	---	---	---	
Paropomala wyowinensis Thos-----	---	---	---	---	---	---	---	.01:	---	---	
Phlioburona quadrimaculata Thos-----	1.26:	.16:	1.06:	---	.79:	9.00:	.19:	9.00:	3.66:	4.37	
Phoetaliotes nebrascensis Thos-----	2.21:	1.15:	4.70:	2.64:	.57:	4.58:	3.03:	2.08:	2.76:	.71	
Pseudopomala brachyptera Scudd-----	---	---	---	---	---	---	---	.01:	---	---	
Spharagemon collare Scudd-----	.69:	.52:	.59:	.38:	1.02:	.87:	.73:	.33:	1.15:	.20	
Spharagemon equale Say-----	.35:	.90:	---	---	.47:	.32:	.43:	.40:	1.15:	---	
Trimerotropis pistrinaria Sauss-----	---	.02:	---	---	---	.05:	---	.02:	---	---	
Trimerotropis campestris McNeill-----	.02:	---	---	---	---	---	---	---	---	---	
Trimerotropis gracilis Thos-----	---	---	---	---	---	---	---	.01:	---	---	
Trimerotropis pallidipennis Burm-----	.01:	.23:	---	---	.02:	---	---	---	---	---	
Trimerotropis sparsa Thos-----	---	---	---	---	---	---	---	.01:	---	---	

In order to shorten the discussion of the grasshoppers found in each of the environments selected in Montana, North Dakota, South Dakota, and Wyoming, the most abundant species have been listed, together with their percentages of the total number of specimens collected in each environment. The percentages are expressed in round numbers.

Small grain

Percent

1. <u>Melanoplus mexicanus</u> -----	43
2. <u>Camnula pellucida</u> -----	17
3. <u>Melanoplus femur-rubrum</u> ----	9
4. <u>Melanoplus packardii</u> -----	4
5. <u>Melanoplus bivittatus</u> -----	3
6. All others-----	24

Legumes

Percent

1. <u>Melanoplus mexicanus</u> -----	37
2. <u>Melanoplus femur-rubrum</u> ----	25
3. <u>Melanoplus packardii</u> -----	7
4. <u>Camnula pellucida</u> -----	5
5. <u>Ageneotettix deorum</u> -----	5
6. All others-----	21

Corn

1. <u>Melanoplus mexicanus</u> -----	27
2. <u>Melanoplus femur-rubrum</u> ----	11
3. <u>Ageneotettix deorum</u> -----	10
4. <u>Melanoplus gladstoni</u> -----	7
5. <u>Melanoplus differentialis</u> ---	6
6. All others-----	39

Flax

1. <u>Melanoplus mexicanus</u> -----	31
2. <u>Melanoplus femur-rubrum</u> ----	24
3. <u>Camnula pellucida</u> -----	21
4. <u>Melanoplus bivittatus</u> -----	5
5. <u>Melanoplus packardii</u> -----	4
6. All others-----	15

Roadside

1. <u>Melanoplus mexicanus</u> -----	32
2. <u>Camnula pellucida</u> -----	18
3. <u>Ageneotettix deorum</u> -----	8
4. <u>Melanoplus differentialis</u> ---	7
5. <u>Melanoplus packardii</u> -----	6
6. All others-----	29

Weedy patches

1. <u>Melanoplus mexicanus</u> -----	39
2. <u>Ageneotettix deorum</u> -----	10
3. <u>Philibostroma quadrimaculatum</u>	9
4. <u>Melanoplus femur-rubrum</u> ----	6
5. <u>Phoetaliotes nebrascensis</u> ---	5
6. All others-----	31

Russian-thistle

1. <u>Melanoplus mexicanus</u> -----	60
2. <u>Melanoplus femur-rubrum</u> ----	6
3. <u>Ageneotettix deorum</u> -----	5
4. <u>Melanoplus packardii</u> -----	5
5. <u>Melanoplus angustipennis</u> ---	4
6. All others-----	20

Plains grassland

1. <u>Ageneotettix deorum</u> -----	23
2. <u>Melanoplus mexicanus</u> -----	14
3. <u>Mestobregma kiowa</u> -----	13
4. <u>Philibostroma quadrimaculatum</u>	9
5. <u>Drepanopterna femoratum</u> ----	8
6. <u>Opeia obscura</u> -----	7
7. All others-----	26

Low-mountain grassland

1. <u>Melanoplus mexicanus</u> -----	25
2. <u>Camnula pellucida</u> -----	20
3. <u>Ageneotettix deorum</u> -----	16
4. <u>Mestobregma kiowa</u> -----	4
5. <u>Drepanopterna femoratum</u> ----	4
6. <u>Philibostroma quadrimaculatum</u>	4
7. All others-----	27

Pasture grassland

1. <u>Mestobregma kiowa</u> -----	40
2. <u>Ageneotettix deorum</u> -----	29
3. <u>Melanoplus mexicanus</u> -----	6
4. <u>Philibostroma quadrimaculatum</u>	4
5. <u>Melanoplus femur-rubrum</u> ----	3
6. All others-----	18

THE MAJOR SPECIES OF GRASSHOPPERS IN OTHER STATES

For all States other than Montana, North Dakota, South Dakota, and Wyoming, the information is based on reports in which only dominant and major species were recorded either at each point of observation or for the State as a whole.

Michigan

The report for this State was furnished by the State leader and was divided into two parts, one for the Upper Peninsula and the other for the Lower Peninsula counties. In these reports the one dominant species was recorded at each place surveyed. These dominant species are listed in order with the number of times they each were recorded as being the most abundant.

Upper Peninsula counties

1. <u>Camnula pellucida</u> -----	90
2. <u>Melanoplus mexicanus</u> -----	42

Lower Peninsula counties

1. <u>Melanoplus mexicanus</u> -----	115
2. <u>Melanoplus femur-rubrum</u> -----	20
3. <u>Camnula pellucida</u> -----	14
4. <u>Arphia tenebrosa</u> -----	4
5. <u>Arphia salphurea</u> -----	1
6. <u>Spharagemon sp.</u> -----	1

In the Upper Peninsula Camnula pellucida is dominant, whereas Melanoplus mexicanus is most abundant in the Lower Peninsula, with C. pellucida ranking third and M. femur-rubrum second. The Upper Peninsula is rugged mountainous "old land" not completely worn down by erosion, and the Lower Peninsula is a portion of the old coastal plain with the soil varying from a light sandy loam in the north-central part to a dark clay loam in the southwest and southeast. This may explain the difference between the dominant species found in the Upper and the Lower Peninsulas.

Wisconsin

In Wisconsin the State leader recorded the three major species in the order of their abundance at each point surveyed. These are listed below according to the number of times they ranked first, second, and third.

First in abundance

1. <u>Camnula pellucida</u> -----	295
2. <u>Melanoplus mexicanus</u> -----	74
3. <u>Dissosteira carolina</u> -----	6
4. <u>Melanoplus bivittatus</u> -----	2

Second in abundance

1. <u>Melanoplus mexicanus</u> -----	196
2. <u>Camnula pellucida</u> -----	24
3. <u>Dissosteira carolina</u> -----	9
4. <u>Melanoplus femur-rubrum</u> -----	6
5. <u>Melanoplus bivittatus</u> -----	5

Third in abundance

1. <u>Melanoplus bivittatus</u> -----	19
2. <u>Dissosteira carolina</u> -----	9
3. <u>Melanoplus mexicanus</u> -----	4
4. <u>Camnula pellucida</u> -----	1

Camnula pellucida was by far the dominant grasshopper in this State.

California

The following information was obtained from a report made by C. C. Wilson, of the Bureau of Entomology and Plant Quarantine, Sacramento, Calif. In California Camnula pellucida was the dominant species on grazing lands, with Oedaleonotus enigma ranking second. Melanoplus femur-rubrum was most abundant in alfalfa and irrigated crops, with M. mexicanus next. In some sections M. differentialis and M. marginatus were numerous.

The important species for the States not previously mentioned are listed in the order of their abundance. These data are based on a report by B. M. Gaddis, of the Bureau of Entomology and Plant Quarantine, of the results of a questionnaire sent to each State:

Minnesota

1. Camnula pellucida
2. Melanoplus bivittatus
3. Melanoplus mexicanus
4. Melanoplus packardii
5. Dissosteira carolina
6. Melanoplus femur-rubrum

Nebraska

1. Melanoplus bivittatus
2. Melanoplus differentialis
3. Melanoplus mexicanus
4. Aulocara ellioti

Idaho

1. Melanoplus mexicanus
2. Melanoplus bivittatus
3. Camnula pellucida

Colorado

1. Melanoplus differentialis
2. Melanoplus mexicanus
3. Melanoplus femur-rubrum

Kansas

1. Melanoplus differentialis
2. Melanoplus bivittatus
3. Melanoplus mexicanus

Nevada

1. Melanoplus mexicanus
2. Camnula pellucida
3. Melanoplus bivittatus

Utah

1. Camnula pellucida
2. Melanoplus mexicanus
3. Melanoplus femur-rubrum
4. Melanoplus packardii
5. Melanoplus bivittatus
6. Aulocara elliotti

Oregon

1. Camnula pellucida
2. Melanoplus femur-rubrum
3. Melanoplus bivittatus
4. Melanoplus mexicanus

DISCUSSION

The survey indicates that Melanoplus mexicanus was the most widespread and destructive to crops of all the grasshopper species concerned in the outbreak. Camnula pellucida came next. Even on the grazing lands, both these species were of great importance. C. pellucida occurred in greatest abundance at higher elevations or in more northern latitudes. Two other species, Melanoplus bivittatus and M. differentialis, very important in past outbreaks, have all but disappeared in the areas of heavy drought. These two species began building up in 1928 in the States of North and South Dakota, and reached their peak of abundance and widespread destruction in the outbreaks of 1931 and 1932. During these years weather conditions, although somewhat hot and

dry, permitted an abundance of food in the form of succulent crops. As drought increased in 1933 and 1934 and crops were ruined, these two species decreased almost to the vanishing point. Native grasses in this drought-stricken area were better able to withstand dry conditions than cultivated crops. M. mexicanus and C. pellucida withstood the drought because they are better adapted to feeding on dry native grass than are either M. bivittatus or M. differentialis, which are more adapted to cultivated crops and build up in abundance in cultivated areas. These changes greatly affect the method and extent of control measures. Melanoplus mexicanus lays its eggs over a much wider area than does either Camnula pellucida, M. bivittatus, or M. differentialis. This means that larger areas have to be poisoned, involving more material and machine scattering to cover the ground. On the other hand, Camnula pellucida, Melanoplus bivittatus, and M. differentialis localize their eggs along headlands, ditch banks, roadsides, and pastures and for this reason can be more easily controlled.

Surveys to determine the species and distribution of grasshoppers are of great importance. Knowing the economic species and their preferred habitats, egg surveys can be concentrated where eggs are most likely to be found and, as a result, more accurate estimates can be made in regard to control measures that will be needed the following year.

INSECT PEST SURVEY BULLETIN

Vol. 14

Summary for 1934

No. 10

INTRODUCTION

The weather during much of the year showed wide departure from normal over the entire United States. December 1933 and January 1934 were abnormally warm over much of the country. However, during the last week in January a cold wave spread eastward and southward from the Northwest to the Atlantic. During February the cold continued over the eastern half of the United States, while abnormally warm weather prevailed over the western half, particularly in the Northwest. Much of the northeastern part was covered with snow during most of the month.

During March the rainfall was deficient in the States that were to suffer from drought later in the season, but was normal from the Mississippi River eastward to the Atlantic.

April and May were warm and dry, over the whole country, and by the end of May the most extensive drought in climatological history of the United States had developed in the interior Northwestern, Midwestern, and Southwestern States. During June, the condition was somewhat relieved in the Dakotas, Minnesota, and Wisconsin, but remained about the same over southern and western parts of the dry area. July normal temperatures, the highest on record in all the States except California and Washington, greatly intensified the drought.

The unusually mild weather in the Northwest was favorable to insect pests, while the severe cold weather in the East proved detrimental to many species in hibernation. The dry spring was favorable to chinch bug development, but the drought that followed was detrimental to several other pests.

INSECT PESTS

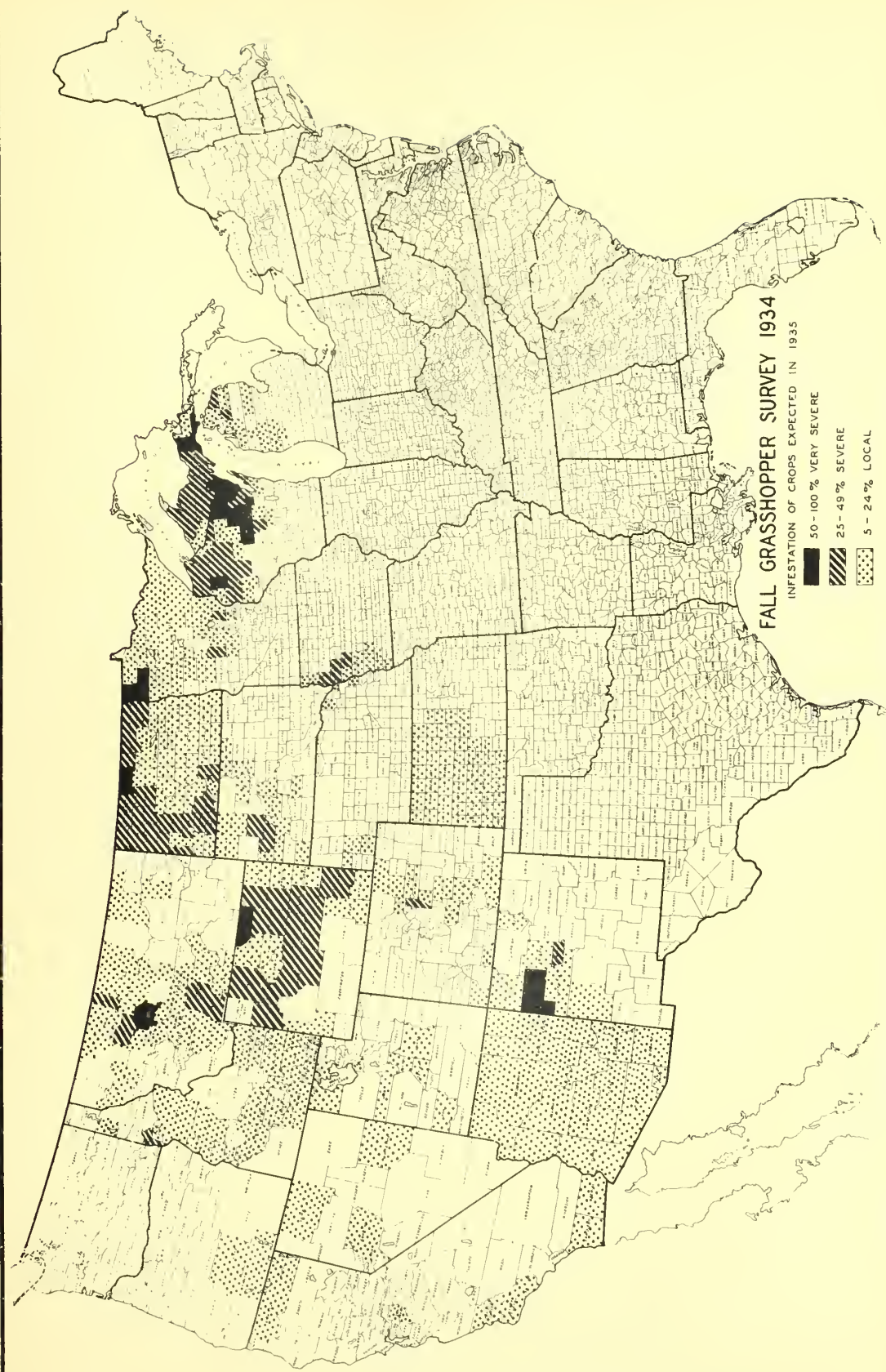
GRASSHOPPERS

Surveys conducted in the fall of 1933 cooperatively by the Bureau of Entomology and Plant Quarantine and the States of North Dakota, Montana, South Dakota, Idaho, Wyoming, and Minnesota indicated that extremely severe grasshopper infestation could be expected in 1934 in the Northern Great Plains and Rocky Mountain regions. This infestation developed about as indicated by the surveys, hatching being heaviest in Montana, North Dakota, South Dakota, and Minnesota. Grasshoppers were also generally abundant in Idaho, Wyoming, Nebraska, Wisconsin, and Michigan. An extensive cooperative control campaign was organized under Federal funds for the control of the anticipated outbreak in these States. As the season progressed it became evident that widespread control operations would be required in 18 States, including Arizona, California, Colorado, Iowa, Kansas, Nevada, New Mexico, Oregon, and Utah, in addition to those referred to above. The most serious infestation, however, was in the Northern Great Plains and Northern Rocky Mountain regions, where grasshoppers hatched in sufficient numbers to have caused widespread devastation had no control been practiced. The control campaign not only prevented any general damage, but undoubtedly very materially reduced egg deposition during the fall, with the result that, although there will probably be some serious infestation next year in Idaho, Wyoming, Montana, North Dakota, South Dakota, Minnesota, Wisconsin, and Michigan, the egg surveys conducted last fall indicate that, except in the two last-named States, the infestation is definitely lower than at a corresponding time in 1933. Extreme drought and high temperatures possibly aided in reducing populations in portions of the infested area, although such conditions necessitated the use of increased quantities of poisoned bait.

Results of the egg survey last fall (see map) are given in terms of the approximate number of acres of susceptible crops that will require baiting. They are as follows: Arizona, 81,281; California, 101,000; Colorado, 89,694; Idaho, 182,468; Iowa, 150,000; Kansas, 102,000; Michigan, 610,383; Minnesota, 728,413; Montana, 614,889; Nebraska, 186,519; Nevada, 107,500; New Mexico, 16,400; North Dakota, 3,368,158; Oregon, 23,800; South Dakota, 275,600; Utah, 40,000; Wisconsin, 1,682,668; and Wyoming, 546,000. (J. R. Parker, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

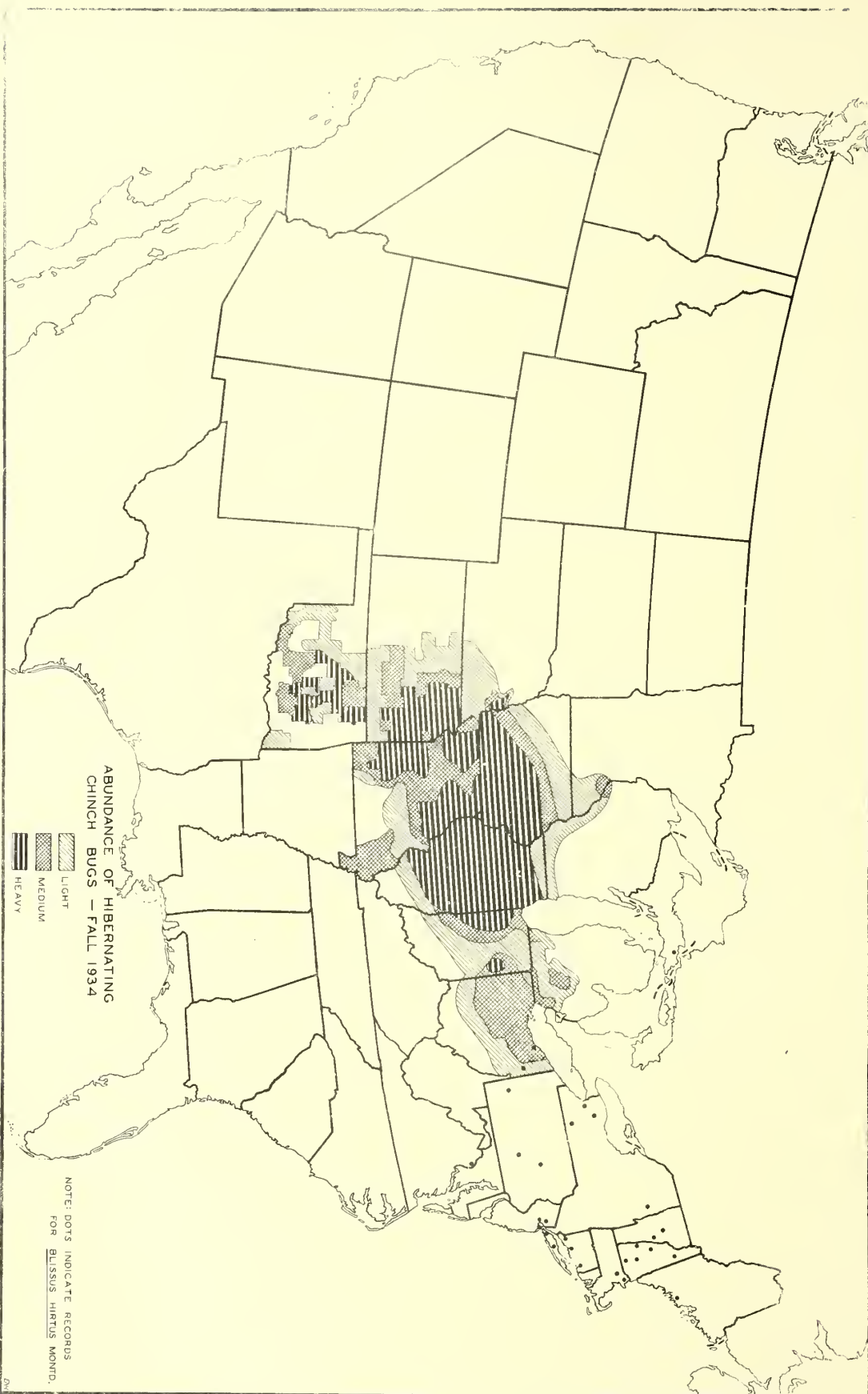
CHINCH BUG

One of the most severe and widespread chinch bug infestations on record developed in the Corn Belt during the year. The extremely mild weather and the dry spring over a considerable portion of the region permitted a high percentage of the large fall population of bugs to overwinter successfully. Migrations began exceptionally early and continued approximately a month in many heavily infested areas. States suffering most severely were Missouri, Kansas, Illinois, Iowa, and Indiana. Less severe infestations occurred in northern Oklahoma, southeastern Nebraska, the northern half of Ohio, and the southern parts of Michigan and Minnesota. Extensive control operations in the Corn Belt were required to protect the corn from migrations of bugs from small grains. A Federal appropriation made possible more extensive control



COUNTY OUTLINE MAP OF THE UNITED STATES





operations than are ordinarily practiced, resulting in the protection of much of the corn from damage by first-brood bugs. More than 8,000,000 gallons of creosote was used in construction of barriers. Fall surveys of the infested area, in most instances conducted cooperatively by the Bureau of Entomology and Plant Quarantine and the States involved, and reports from State entomologists indicate that chinch bug populations are heavier in general now than they were last fall and that the area where the bugs are overwintering in numbers is considerably extended over that of last year, reaching to the northern boundary of Iowa, into the southern tier of counties in Minnesota and Wisconsin, and well up into the State of Michigan on the north; to the eastern boundary of Ohio on the east; to the middle of Kansas on the west; and south to the southern boundaries of Oklahoma and Missouri.

The accompanying map indicates the relative severity of infestation based on present available data on abundance. In view of the lack of a standardized method of making surveys the degrees of severity indicated are only approximate. The States of Oklahoma, Kansas, Missouri, Iowa, Minnesota, Michigan, and Nebraska conducted detailed surveys cooperatively with the Bureau of Entomology and Plant Quarantine. The data for Wisconsin, Indiana, and Ohio are based on severity of infestation in 1934, combined with data obtained from the State workers and incidental observations made by workers at Federal laboratories regarding fall abundance of hibernating bugs. Possibly some infestation will occur in the south-central portion of Missouri, which was not surveyed. The northwestern corner of Iowa is indicated by C. J. Drake as being very lightly infested. Unless spring weather is unfavorable for chinch bug development, severe damage may be expected and extensive control operations will be required this spring.

Minor damage, primarily to lawns, was also reported from Vermont, New York, New Hampshire, and Massachusetts. Damage in eastern Ohio and the Eastern States was probably due in the main to Blissus hirtus Montd. (P. N. Annand, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

HESSIAN FLY

At harvest time the hessian fly was, in general, at very low ebb in numbers throughout the winter-wheat regions. The severe drought west of the Appalachian Mountains evidently acted as an effective restraint on the multiplication of the pest. Injury was recorded in scattered districts in southeastern Kansas, southern Missouri, east-central Indiana, middle Tennessee, northern Ohio, south-central Pennsylvania, and central North Carolina. As the season progressed, however, some change in conditions was observed. For instance, east of the Appalachians the rate of infestation showed a distinct increase. In New York the average infestation was 10 percent, or more than three times as high as in 1933. In Maryland the infestation was light, averaging 5 percent, but heavier than that of 1933. In Pennsylvania, however, serious infestation was general and considerable damage was done by the fall generation. The average rate of infestation for the State had advanced from 3 percent in 1933, to 23 percent in 1934. Early sown fields were badly damaged. In Virginia and North Carolina late sowing prevented any widespread increase in infestation, but occasional early sown fields were found heavily infested. It is believed that together with some infestation in volunteer wheat, these fields may be sources of serious

local infestation in the spring of 1935.

In the East Central States the fall surveys showed but little change from the conditions noted previously at harvest time. Only a few fields inspected showed any sign of immediate or prospective serious damage, and growing conditions for small grains were in general favorable.

In the West Central States drought had induced premature emergence from the summer puparia, the flies issuing immediately after the first effective rains, early in September. No volunteer wheat was yet above ground when the emergence began, therefore the flies deposited but few eggs. As this emergence occurred about 3 weeks in advance of the average planting date, the infestation over a considerable portion of the territory was very light. Some fields in southeastern Kansas and southwestern Missouri showed relatively high infestation last fall. (P. W. Annand, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

EUROPEAN CORN BORER

The usual fall survey of the European corn borer was conducted by the Bureau of Entomology and Plant Quarantine. The marginal territory around the area known to be infested was also scouted during the past season. Those activities were under the immediate supervision of A. M. Vance, of the Toledo, Ohio, laboratory. The results are as follows: Over the 1-generation area as a whole, there was a general decrease in infestation in 1934 from that of either 1932 or 1933. In the 2-generation area, definite increases in populations in 1934 over those of 1933 were evident only in southern Connecticut. The heaviest infestation in the 1-generation area in 1934 occurred in the New York counties bordering Lake Ontario and in a limited area in Michigan and Ohio, extending a short distance southwestward from the western end of Lake Erie. In Indiana the chief concentration of population continued to be in Steuben, De Kalb, and Allen Counties, in the extreme northeastern corner of the State. In the 2-generation area the heaviest infestation remained in eastern Massachusetts, Rhode Island, southern Connecticut, and on the eastern half of Long Island, N. Y. The general level of infestation in 1934 tended to be considerably higher in the 2-generation than in the 1-generation area. In the former, 16.1 percent of the fields surveyed in 1934 were uninfested and 26.7 percent had populations of from 1 to 25 borers per 100 plants; in the 1-generation area, 28.8 percent of the fields surveyed this year were uninfested and 55.9 percent had populations of from 1 to 25 borers per 100 plants. In the former area, 21.2 percent of the fields were infested with more than 200 borers per 100 plants, while in the latter less than half of 1 percent of the fields were infested to the same degree. The general decrease of infestation in 1934 in the Great Lakes region is attributed to subnormal moisture last year, which reached extreme drought in May, June, and July, when the temperatures were abnormally high. Such excessive heat and drought over an extended period of time covering pupation of the borer in the spring, oviposition of the moths, and summer establishment of young larvae in corn, proved extremely adverse to the propagation of the species in the 1-generation area. Drought, which also prevailed in certain parts of the 2-generation area, limited the increase of the borer.

The scouting work revealed no extension of the range of the corn borer except in the following counties which are in every case adjacent to areas previously known to be infested: Hamilton County, Ohio; Somerset County, Md.; Sussex County, Del.; Cumberland County, N. J.; and Northampton County, Va. In addition to the marginal survey, a less detailed reconnaissance survey was conducted in Wisconsin, Illinois, Kentucky, West Virginia, and Virginia, outside the present known limits of infestation. No new infestations were found. (P. N. Ammend, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

CORN EAR WORM

During the third week in April the corn ear worm appeared in central and southern Florida, southern Louisiana, and Hidalgo County, Tex. By the middle of June heavy damage was being reported from the Carolinas to southern Iowa and Kansas. Early in July larvae appeared in southern New York and Connecticut. Serious damage was already being done to sweet corn and field corn in the East Central States. There was probably more damage by this insect in the upper Mississippi Valley than there has been for many years. The insect was not so destructive in the northeastern part of its range as it was last year.

ARMYWORM

Early in June heavy flights of the armyworm were observed in Indiana and Illinois. As the month advanced, light outbreaks were reported from Illinois and severe outbreaks from Wisconsin, Minnesota, and Iowa. In August the worst outbreak of many years occurred in southeastern Minnesota and north-central Iowa.

GREEN BUG

Late in February the green bug appeared in Kingfisher and Alfalfa Counties, Okla. In April the aphid became numerous in wheat, barley, and timothy in southern Missouri and was reported as destroying wheat in southwestern Nebraska and throughout the wheat-growing sections of Kansas and eastern Oklahoma and the eastern half of Colorado. By the middle of May over 22,000 acres of wheat were a total loss, 50,000 more were damaged in Oklahoma, and 21,000 acres of oats were completely destroyed.

WEBWORMS

Two species of webworms, Loxostege sticticalis L. and L. connixtalis Walk., appeared in unusual numbers from Minnesota and North Dakota southward to Nebraska, Kansas, and Colorado. Very heavy flights of moths were observed during May. Larvae became very abundant in Minnesota and North Dakota during August. Larvae of L. sticticalis were so numerous in Frontier County, Nebr., that where migrating individuals crossed railroad tracks, they impeded the movement of freight trains. Crops were considerably damaged in Kansas and Nebraska. The garden webworm (L. similalis Guen.) was reported as damaging alfalfa and soybeans from Ohio to Iowa, Missouri, and Nebraska.

ALFALFA WEEVIL

Surveys made in the fall of 1933 indicated menacing abundance of adults of the alfalfa weevil throughout hay-growing districts of Utah, in western Nevada, and in the infested area of southern Oregon. This outlook was confirmed by the spring check-up following the very mild winter, and the early spring gave the weevil a good start in all sections. Moreover, in Utah, at least, the general scarcity of precipitation in the spring minimized local weather differences, placing all districts on about the same developmental schedule. The warmth and drought in the spring when the heat amounted to twice the normal number of day-degrees and the precipitation measured one-fourth of normal at Salt Lake City, prevented the usual slowing-up effect of spring weather on the egg population and permitted hatching to keep pace with oviposition, thus spreading the larval attack over a much longer period. Under the circumstances, the threatened outbreak failed to materialize. In western Nevada the situation was complicated by a severe outbreak of the pea aphid very early in the spring. The aphids stunted and partially killed the alfalfa growth, exaggerating the unseasonable heat and drought as regards weevil activities. The aphid damage, together with the grazing which was generally adopted for aphid control, greatly reduced the abundance of alfalfa weevil larvae, which were then exceptionally well parasitized by Bathyplectes curculionis Thoms. As a result, the new-generation population of adult weevils is extremely small. The weevil survey last fall indicates a comparatively low level of adult abundance, the principal exceptions being in western Nevada and western Idaho, where the weevil is especially scarce, and in Salt Lake and Box Elder Counties, Utah, where the populations are mostly menacing. The Grand Junction and Delta districts of Colorado and the Rexburg district in Idaho showed sizable populations in nearly half the fields. In the remainder of the weevil territory small and varying proportions of the fields have injurious populations. No new extensions of the weevil-infested territory were discovered during the year. (J. C. Hanlin, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

VETCH BRUCHID

During June 1931 the vetch bruchid (Bruchus brachialis Fahraeus) was first collected in the United States at Haddon Heights, Camden County, N. J. Later in that year it was found in Burlington and Atlantic Counties, N. J., Kent County, Del., Wicomico County, Md., and Rowan County, N. C. In 1932 it was found in additional localities in Maryland, and in Virginia near the District of Columbia. During July 1934 the weevil was reported from Franklin County, Pa., and Rowan and Iredell Counties, N. C. The present known distribution is indicated on the accompanying map.

SUGARCANE BORER

As in past years, the sugarcane borer was found attacking sugarcane, corn, rice, and sorghums within a radius of from 50 to 150 miles of the Gulf of Mexico in Texas, Louisiana, and Mississippi, and in the southern half of Florida. The greatest injury occurred on sugarcane in Louisiana and Florida, and on corn and rice in Louisiana and Texas. In Louisiana a normal infestation occurred this season in the eastern part of the sugarcane section. In the



VETCH BRUCHID

Known distribution to Dec. 31, 1934



western part, the infestation developed somewhat later than usual, but owing to rapid increase in borers, there was an average infestation by harvest time. As in past years, the infestation was light in the extreme western and northern parts of the sugarcane section. Although many fields were 100 percent infested, the average for the State is estimated at between 45 and 55 percent of the stalks bored, a little less than the average for the past 3 years. In general, losses have slightly decreased during the past 2 years owing to the replacement of the very susceptible variety P.O.J. 213 by varieties less susceptible to injury, as C.F. 807 and Co. 290. In Florida the infestation in sugarcane was much lower in August and September than normally reported for that time of the year. In the Fellsmere district the infestation was 7 percent, whereas at the same time during the previous year, the infestation was 93 percent. This drop was possibly caused by the destruction of many larvae by the flooding of the stubble after the harvesting of the previous year's crop. In eastern Texas corn planted prior to April 1 developed an unusually heavy infestation, apparently owing to greater winter survival of larvae. Corn in Louisiana and corn planted at a later date in Texas developed average infestations. In rice there was an average borer infestation. About 7 percent of the stalks were bored. From 90 to 95 percent of this injury was caused by the sugarcane borer, the remainder being due to the rice stalk borer (Chilo plejadellus Zinck.). (J. W. Ingram, Bureau of Entomology and Plant Quarantine, U. S. D. A.).

CODLING MOTH

About 30 percent of the larvae of the codling moth above the snow line in Missouri were killed as a result of a very cold spell in March, when the temperature reached -14° F. Heavy mortality was also reported from the New England and Middle Atlantic States, but mortality was negligible from Kansas to the Pacific coast. In Kansas some pupae were found during the first part of February, and in the Pacific Northwest pupation was well under way during the second and third weeks in March. Reports from Washington and California indicate that the insect was from 10 to 20 days earlier than usual. About the middle of April pupation was observed in Maryland and Delaware, and at that time moths were appearing in Georgia. Pupation started in southern Illinois the first week in April. In the Pacific Northwest moths started to emerge during the second week in April, and in the Hudson River Valley in New York, early in May. The peak of emergence had been reached by the end of May in practically all parts of the country. As the season advanced, it became evident that the codling moth was more abundant than usual in the East Central States, about normal in the remainder of the Eastern States, and below normal in the Pacific Northwest. In the Middle West, west of the Mississippi River, the first brood indicated that the infestation would be high, but the second brood was greatly reduced by the drought. Late in the season a heavy third brood practically offset the early light infestation.

PLUM CURCULIO

The plum curculio was generally distributed in the orchards in Georgia by April 10. In South Carolina the first adults were observed on April 2. In Delaware the first emergence was observed during the third week of the month. The first beetles were observed in New York and Massachusetts during the third week in May, when full-grown larvae were beginning to leave peach drops in

central Georgia. Cool, rainy weather in the latter State delayed pupation, but the infestation was heavier than usual. In Alabama the infestation on Carman and Hiley peaches was the heaviest since 1918. Elbertas in Georgia were heavily infested by the second brood. On December 1, O. I. Snapp made the following statement: "An adult emerged from the soil of Fort Valley today, which is the latest emergence date on record. The larva from which this adult was reared entered the soil on or before August 1; therefore, this individual remained in the soil as larva, pupa, and adult at least 122 days, the longest period ever recorded."

ORIENTAL FRUIT MOTH

Winter mortality of the oriental fruit moth in western New York State amounted to 75 percent, and in Delaware ranged from 40 to 50 percent. By the last week in April pupation was fairly well under way in the Middle Atlantic States and emergence of adults had started by the last of the month. First-brood larvae were appearing in peach twigs in the South Atlantic States by the last week in the month. Infestation in twigs was more abundant than usual in New York, Illinois, western Maryland, Virginia, Tennessee, and Alabama. The brood that normally infests the fruit remained in the twigs for hibernation in the Northern States, and was so late coming out in the Southern States that little damage was done.

GRAPE LEAFHOPPER

Early in March the grape leafhopper appeared in large numbers in the San Joaquin and Imperial Valleys of California and the Salt River Valley of Arizona. As the season advanced, the worst outbreak in many years developed in the San Joaquin Valley. Late in June heavy infestations were reported from Michigan and western New York through Pennsylvania, Ohio, and Indiana, and westward to Nebraska, Kansas, and Minnesota. Considerable injury occurred in many localities. In the Niagara district of New York damage was more severe than it has been in many years.

FRUIT FLIES

The extensive use of glass flytraps resulted in taking specimens of the Mexican fruit fly (Anastrepha ludens Loew) from approximately three times as many groves in the lower Rio Grande Valley of Texas as had been found infested in any previous year. Despite intensive inspections of the fruit in the 176 groves in which adult flies were taken, no larvae were found until the latter part of April, after the end of the harvesting and shipping period, when fruit gleaned from four groves in the tree-to-tree inspections in the Mission district was found infested. Adults had previously been taken in three of these groves. Of interest in the larval findings was the fact that several green "October-bloom" fruit were found infested with full-grown larvae, indicating that the eggs had been laid while the fruit was decidedly immature. The inability to locate larval infestations, even in a 35-day extension of the harvesting period, indicates that the number of flies present in the valley was considerably less than during some previous years, even though the number of groves involved shows the infestation to be generally scattered. Three

adult specimens of A. ludens were taken in three groves in Willacy County in January 1934, the first ever taken in this county. During the year specimens of A. ludens, A. serpentina Wied., Anastrepha fraterculus auct., A. ballens Coq., A. striata Schin., Anastrepha spp. (undetermined), the papaya fruit fly (Toxotrypana curvicauda Gerst.), and an unnamed species belonging in the sub-genus Pseudodacus, were taken in traps operated in the lower Rio Grande Valley of Texas. With the exception of A. striata, of which a single adult was trapped near Mission, these species have been taken throughout the citrus area of the lower Rio Grande Valley, and with the possible exception of A. fraterculus auct., none of these species are known to exist elsewhere in the continental United States. (P. A. Hoidale, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

CITRUS BLACKFLY

In a memorandum dated October 15, 1934, Dr. Wilmon Newell, of the State Plant Board of Florida, makes the following statement: "On August 10 of this year inspectors operating at Key West discovered an infestation of the spiny citrus whitefly or blackfly (Aleurocanthus woglumi Ashby). A survey indicated that from a central point of heavy infestation the insect could be found in diminishing quantities for a distance in all directions of from one-fourth to one-third mile. On August 11, at a conference of United States Department of Agriculture and State Board representatives, an intensive spraying campaign was determined upon. Such a campaign, using an oil spray built after a formula recommended by the Bureau of Entomology and Plant Quarantine and applied with power equipment supplied by that Bureau, was immediately instituted. The campaign was supported by city and county governmental organizations and contemplated as an initial effort three thorough applications of the oil spray at 30-day intervals. At the same time, removal of host material from Key West was prohibited. Intensive inspection by a large force of trained operatives has failed to disclose any infestation other than that at Key West. The oil spray appears to be effective in killing the fly in its various stages."

BOLL WEEVIL

Low temperatures during the latter part of January and February along the Atlantic coast caused heavy mortality of the boll weevil and very few weevils survived in Virginia and the Carolinas. At the Florence, S. C., laboratory the survival in the hibernation cages was the lowest ever recorded. Although the survival was somewhat lower than normal in Georgia and Alabama, it was higher in those States than in the Carolinas. In Mississippi the survival was fairly high but spotted, and in Louisiana it was high. At the Tallulah, La., laboratory, the survival in the hibernation cages has been exceeded in only 1 previous year, 1932, following the warmest winter since the laboratory was established. Survival was also high in Oklahoma and Texas. During the growing season dry weather in June and July held down infestations in the eastern part of the Cotton Belt, and the drought in Oklahoma and Texas not only held down the population, but was so severe as to seriously affect cotton production. After rains began in August the weevil population developed rapidly in those States and caused considerable damage to the late crop

in southeastern Oklahoma and eastern Texas. Early in the season weevils were abundant in Louisiana, Mississippi, and southern Arkansas and caused more damage throughout the season in that region than elsewhere, but here also dry weather late in June and in July helped greatly in preventing weevil damage. Throughout this region cotton was more generally dusted than ever before, and more airplane dusters were in use than during any previous year. The entire northern third of the cotton-growing area was comparatively free of weevils throughout the season. In 1933 seven boll weevils developed in and emerged from Hibiscus syriacus in the field. This constitutes the first record of attack of any plant other than cotton and *Thurberia*. (R. W. Harned, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

PINK BOLL WORM

For the past several years the distribution and abundance of the pink bollworm has been largely determined by gin-trash inspection. By this means infestations have been located in Florida, Georgia, Texas, New Mexico, and Arizona. Infestation has existed for a number of years in Texas, in El Paso, Hudspeth, Presidio, Brewster, Pecos, Reeves, and Ward Counties, and is still present. Infestation was found in the 1933 crop in Bailey, Lamb, Cochran, Hockley, Yoakum, Terry, Gaines, and Dawson Counties, but of these counties only Terry was found infested in 1934. Specimens were found in Midland County also in 1934. With the exception of Brewster, Presidio, and part of Hudspeth County, the infestation has been so light as to cause no commercial damage. Only enough inspection is made each year to determine the continued presence of the insect, therefore it is impossible to give an accurate idea of the abundance. In most of the areas only a few specimens are found, and there has been very little change in populations for the past several years. In Brewster and Presidio Counties the infestation had built up until in 1931 the damage amounted to about 14 percent of the cotton crop for these two counties. In one section of Presidio County the damage ran well over 20 percent, with some few fields being practically a complete loss. For the past three seasons special control measures have been carried on, so that at the end of the 1934 season, even though a large number of worms were present, they developed late in the season and caused very little, if any, loss. For several years infestation has existed in New Mexico in Chaves, Dona Ana, Eddy, Luna, and Otero Counties. In 1933 additional infestation was found in Lea and Roosevelt Counties, but none was found in these two counties in 1934. In Arizona infestations previously occurred in Maricopa, Pima, and Pinal Counties. The last specimens found in Maricopa and Pinal Counties were from the 1931 crop, and in Pima County none has been found since 1927. Specimens were taken in Graham County in the 1934 crop. A small amount of cotton is grown in Greenlee County, ginned in Graham County. It is therefore possible that some of the specimens found this season originated in Greenlee County. The first specimens to be taken in Florida were found in Alachua and Columbia Counties in the 1932 crop, but none have since been found in those counties. During the 1933 season one specimen was found in Madison County and one during the 1934 season. Specimens were found in the 1934 crop in Hamilton, Jackson, Levy, and Suwannee Counties. Infestation was discovered on wild cotton growing along the coast and on keys or islands in southern Florida in 1932. The

most northerly infestation on the east coast was at Lake Worth in Palm Beach County, and on the west coast on Terra Ceia Island in Manatee County. The eradication of the wild cotton was immediately begun, and has been in progress now for 3 years. During the course of the eradication, inspections are made from time to time, and so far this season no infestations have been found. Most of the plants now being removed are seedlings and sprouts, and they contain very little or no fruit. As no systematic inspections have been made of this wild cotton, it is impossible to give any accurate idea of the condition of infestation at this time. In Georgia specimens were found in the 1933 crop in Berrien and Tift Counties, but none were found in the 1934 crop. (R. E. McDonald, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

VEGETABLE WEEVIL

The vegetable weevil was reported as damaging truck crops in Alabama and Mississippi during January. As the season advanced, it became evident that the insect was not so injuriously abundant as usual. The most significant development occurred in California, the insect being discovered for the first time in the Sacramento Valley in Sacramento County, and in southern California in Los Angeles and Orange Counties. It was reported on avocado and citrus in Orange County. During the fall of 1934 the weevil did not start feeding heavily along the Gulf coast until the latter half of October. Oviposition started during the last 10 days of October.

In 1933 the weevil was found for the first time in Tennessee, in Hardin County.

MEXICAN BEAN BEETLE

Reports on the Mexican bean beetle from Ohio indicate that in that State the low temperatures late in January produced a high mortality of the hibernating beetles. Similar high mortality was reported eastward to northern Delaware. However, as the season advanced, it became evident that enough of the beetles had successfully passed the winter to occasion considerable damage throughout most of the known infested range. Damage was considerably less than early in the season last year. By fall heavy infestations had reestablished themselves over most of the infested territory. The beetle has spread northeastward in Maine to Sagadahoc, Lincoln, Knox, and Waldo Counties, the southeastern part of Penobscot, and the southern part of Somerset. It was reported for the first time from Orange and Windsor Counties, Vt. It extended its range in Mississippi southward to Stone County and westward to Webster County.

PEA APHID

In February and the early part of March the pea aphid built up a considerable population in early seeded vetch and pea fields in Oregon and California. In April it was reported as damaging alfalfa in Indiana and from southern Iowa and Nebraska southward through Missouri to Mississippi and westward through the Great Basin to the Pacific Northwest. By the end of March vetch and Austrian field peas were being destroyed in the Willamette Valley, Oreg., and

the Puyallup Valley, Wash. Rather heavy infestations were observed early in the season in the cannery-pea sections of Michigan and Wisconsin. High temperatures during the latter half of May reduced the infestation to negligible numbers in these States. In New York State a very heavy infestation occurred on late peas and many fields were plowed under. An unusual outbreak also occurred in northern Idaho and eastern Washington, particularly on late varieties of peas.

PEA MOTH

The pea moth (Daspevresia nigricana Steph.) was reported as causing considerable loss to pea growers in Whatcom and Skagit Counties, Wash., during the summer. The insect was also reported from British Columbia about the same time. These constitute the first records of occurrence in the western part of North America. The first record of appearance in the United States was made in 1908 in Charlevoix County, Mich. Since that time it has been reported from Wisconsin, Indiana, and New York. It has been known in Canada since 1893 and occurs from Manitoba eastward to Nova Scotia.

BEEF LEAFHOPPER

During 1934 the investigations on the beet leafhopper were continued in Idaho, Utah, California, and Colorado. The curly-top disease transmitted by this pest caused severe injury to the sugar beet crop in all of the intermountain regions. Early in the season the prospects were for low leafhopper populations in the Idaho beet-growing area. However, unexpected numbers migrated into the cultivated area, resulting in the abandonment of a considerable portion of the acreage that had been planted. This influx of the leafhopper was not due to a development of the pest in areas which had heretofore been considered as important in contributing to the leafhopper populations in the beet-growing areas, but was attributable to a migration from an unknown distant breeding area (see map). The abandonment of acreage, plus shortage of irrigation water, caused an estimated reduction of nearly 95 percent in the tonnage of sugar beets produced in Idaho during 1934, as compared to 1933 (20,000 versus 353,000). Similar losses were sustained by the bean industry, it being estimated that crop reduction from the beet leafhopper outbreak in two representative districts, Twin Falls and Filer, amounted to from 30 to 50 percent on contract beans, with significant losses to commercial white beans (Great Northern).

In Utah the leafhopper was very abundant, corroborating the early season predictions based on population studies on the wild host plants in the desert areas. In general, the beet crop of Utah was very seriously damaged by curly-top, as evidenced by the estimated 1934 production of 225,000 tons, as compared to approximately 912,000 tons in 1933, the reduction being caused principally by the disease. These losses were sustained in practically all of the beet-growing districts of the State, with the exception of the Cache Valley.

In California the program for the spraying and elimination of the wild host plants which was conducted in the San Joaquin Valley apparently reduced leafhopper damage, as the preceding mild, dry winter would have permitted

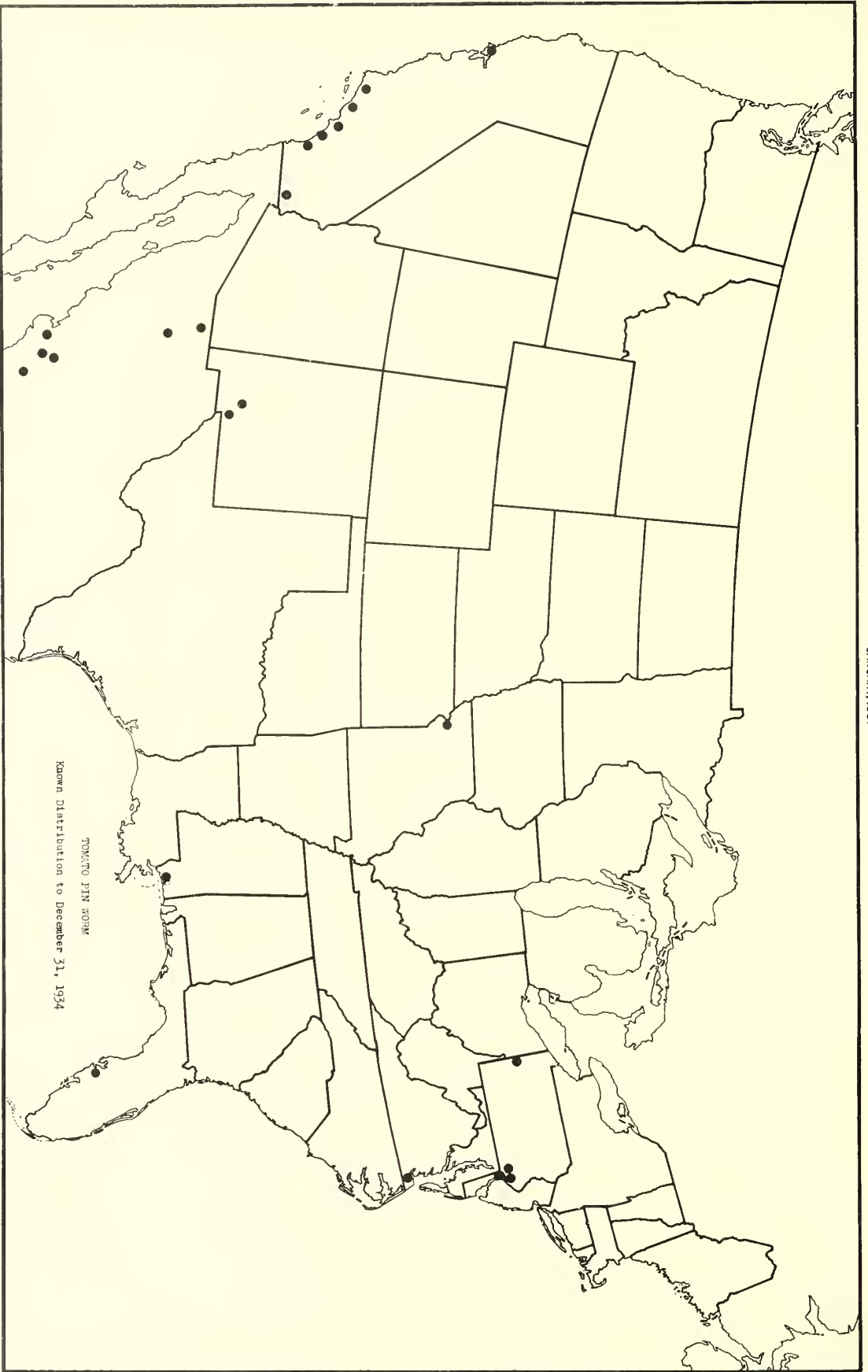


CULTIVATED AREAS AFFECTED BY CURLY TOP DISEASE AND
BREEDING AREAS OF THE SUGAR BEET LEAFHOPPER, ITS CARRIER

- AREAS WHERE SUGAR-BEET LEAFHOPPER CAUSES PERIODIC EPIDEMICS OF CURLY TOP DISEASE TO SUGAR BEET, TOMATO, CUCUMBER, MELON, SQUASH, AND BEAN CROPS.
- WILD LAND BREEDING AREAS OF THE SUGAR BEET LEAFHOPPER FROM WHICH IT MIGRATES TO CULTIVATED AREAS.
- CULTIVATED AREAS CONTAINING SOME WILD LANDS WHERE LEAFHOPPER BREEDS AND TRANSMITS DISEASE TO SUSCEPTIBLE CROPS GROWN IN THE SAME OR CLOSELY ADJACENT AREAS.



JANUARY, 1931



TOMATO PIN WORM
Known Distribution to December 31, 1934

OUTLINE MAP OF THE UNITED STATES

the large overwintering populations to build up in destructive numbers. Exceptionally good yields were obtained in 1934 in the principal beet-growing districts, averaging approximately 15.5 tons per acre in the San Joaquin, Sacramento, and Salinas Valleys, representing increased yields, as compared to those of 1933. Curly-top caused some damage in the southern end of the Salinas Valley, where the acreage was reduced from the plowing up of some of the beets severely infected by this disease early in the season. Curly-top (western yellow blight) was also prevalent in tomatoes grown in the San Joaquin Valley in 1934. In a survey of 1,837 acres of this crop, in eight different localities of the valley where the leafhopper was most numerous, it was estimated that an approximate loss of 16.6 percent was sustained from this cause, the estimate being based on the percentage of diseased plants.

In western Colorado and adjacent portions of eastern Utah, the predicted abundance of the leafhopper was corroborated. Curly-top reduced the yield of sugar beets approximately 1 ton per acre in 1934 over that of 1933 (8.78 versus 9.94), as compared to a normal yield, which ranges from 12 to 15 tons per acre. Part of the reduction in beet tonnage may be attributed to shortage of irrigation water, but this was of minor importance as compared to curly-top injury. (D. J. Caffrey, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

TOMATO PIN WORM

The tomato pin worm (Gnorimoschena lycopersicella Busck) has become established in several widely separated localities in Eastern United States during the last 5 years (see map). The first record was of a localized infestation in a greenhouse at Coatesville, Chester County, Pa., in the fall of 1929. In 1930 tomatoes in nearby fields were severely infested. This infestation was thought to be eradicated, but again in 1931 the insect was reported as attacking tomatoes in the fields near Coatesville. It was not seen again in this district until the fall of 1933, when it was found in a number of greenhouses from Avondale, Chester County, to Brandywine Summit, Delaware County. Numerous outdoor plantings were also severely infested. In October 1933 it was discovered in western Pennsylvania in a greenhouse at Wampum, Lawrence County. The grower there said that the insect had also been numerous in the field during the summer and that he had first noticed it in 1932. It was found about this time in a greenhouse at New Castle, Lawrence County. The grower there said he had never seen the insect in the field, but that it had been in the greenhouse for about 3 years. Another greenhouse in New Castle was found to be slightly infested. During the spring of 1932 the pin worm caused serious injury to tomatoes at Bradenton, Manatee County, Fla. In the spring of 1933 the insect was recorded from a greenhouse in Norfolk, Va. It was recorded from a greenhouse near Wilmington, Del., in January 1934, where by June half the plants were ruined. In May 1934 the insect was first discovered in Mississippi at Gulfport. Later in the summer it was found in the field. The grower said that he lost two-thirds of his crop in 1933. It was also found at Long Beach. In October 1934 it was discovered in a greenhouse at Saint Joseph, Mo. In addition to the new records for 1934, the insect was reported from all the older infested localities. It was very abundant in southern California, where some fields had practically 100 percent

infestation. In the original description (Hawaii. Ent. Soc. Proc. 7 (1), 1928) Busck gives the distribution as Hawaii, California, and Mexico. The only other record in the United States was made in 1931 in Dona Ana County, N. Mex.

PERIODICAL CICADA

Brood VIII of the periodical cicada (Macrocicada septendecim L.) appeared in considerable numbers in a compact area in western Pennsylvania and eastern Ohio. The old brood on Martha's Vineyard Island, Mass., reappeared and single individuals were recorded in Maryland near Washington, D. C., and in northern Virginia. A few specimens of the small form, cassinii Fisher, were reported from northeastern Kansas. Brood XX of the 13-year race, M. tredecim Walsh and Riley, was represented by colonies in central Haroldson and southern Pike Counties, Ga. County records for the year are as follows:

Brood VIII: Kansas, Douglas, Leavenworth;
Maryland, Montgomery; Prince Georges;
Massachusetts, Dukes; Ohio, Carroll,
Columbiana, Delaware, Mahoning, Stark;
Pennsylvania, Allegheny, Armstrong, Beaver,
Clarion, Fayette, Indiana, Jefferson, Lawrence,
Luzerne, Mercer, Venango, Washington, Westmore-
land; Tennessee, central and eastern parts;
Virginia, Frederick.

Brood XX: Georgia, Haroldson, Pike.

JAPANESE BEETLE

The area continuously infested by the Japanese beetle at the end of the 1934 season is estimated as 9,700 square miles, an increase of 900 square miles over that of 1933 (see map). Of this area 6,160 square miles is in New Jersey, 2,600 in Pennsylvania, 660 in Delaware, 120 in Maryland, and 160 in New York. Within this area of continuous infestation the population varies greatly. There has been no appreciable increase in numbers in the older infested sections of New Jersey, near the northern limits of distribution or in the coastal sections of the State. The numbers have increased over 1933, however, in Monmouth County, N. J., and in all of the continuously infested area in Pennsylvania, Maryland, and Delaware. Areas of exceptionally heavy tree injury were more numerous in 1934 than in 1933. The most extensive of these was in extreme southwestern New Jersey, but others were well developed in Pennsylvania west and southwest of Philadelphia, and in northeastern Delaware. The work of the season indicates that, with the exception of three localities, the beetle has not become established in any place outside the present regulated areas. The capture of a few beetles at certain points outside the regulated area does not mean that an infestation is established. The most outstanding first-record find of the Japanese beetle at a point remote from the infested areas was at St. Louis, Mo., where beetles were collected in such numbers as to indicate an established infestation. Another first-record find consisted of 17 beetles caught at Indianapolis, Ind., in a residential section of the city at some distance from a railroad line.



UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE



JAPANESE BEETLE

KNOWN DISTRIBUTION TO OCTOBER 1, 1934

This infestation probably resulted from illegal transportation of infested plant material. The infestation at Charlottesville, Va., can probably be accounted for in the same way. Beetles were first found at Charlottesville in 1932. This year 60 beetles were trapped in that city. Other first-record trappings include 6 beetles taken at Chicago and 1 at East Saint Louis, Ill. The locations at which the beetles were trapped in Chicago and East Saint Louis, point to the probability of these having been transported from the heavily infested sections of New Jersey or Pennsylvania via rail in refrigerator cars containing agricultural products not ordinarily subject to infestation. As a result of this season's trapping activities, additional catches were recorded in 5 cities in Maine; in 58 Maryland communities, both inside and outside the regulated zone; in Detroit, Mich., where a few beetles have been trapped each year since 1932; in 9 New York cities; in 6 localities in Ohio; at Erie, Pa., where an infestation was first determined in 1931; in 6 cities in Virginia; and at 7 points in West Virginia. Traps set in Greenville, S. C., in an effort to pick up additional beetles at the site where 2 beetles were collected by hand, failed to catch any further specimens. Practically all of the few first-record infestations found in these States consisted of a few beetles each. None of them clearly pointed to an established infestation. The remaining infestations were largely survivors of known incipient infestations which successive years' trappings have shown not to have built up. (C. H. Hadley and L. H. Worthley, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

ASIATIC BEETLES

The known distribution of Anomala orientalis Waterh. has not changed from that given in the summary for 1933. The area infested by the Asiatic garden beetle (Autoserica castanea Arrow), however, has increased somewhat in 1934. On Long Island the infestation has moved eastward in Suffolk County, and in Westchester County, N. Y., and in Fairfield County, Conn., the area generally infested has become enlarged. In northeastern New Jersey there has likewise been an enlargement of the generally infested area and the degree of infestation in this area has been somewhat greater than in 1933. In all of the infested territory A. castanea has been fully as destructive to plants as in previous years, and in addition has been decidedly a nuisance, because of the large numbers of beetles that collect on warm nights in places illuminated by high-powered lights. The following records of new infestations were made during the year: Coscob and Danbury, Fairfield County, Conn.; Moorestown, Burlington County, Milltown, Middlesex County, Allenhurst, Monmouth County, Morristown, Morris County, Bound Brook, Somerset County, and Roselle Park, Union County, N. J.; Dobbs Ferry and Valhalla, Westchester County, N. Y.; and Cheltenham, Montgomery County, Pa. (C. H. Hadley, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

GYPSY MOTH

The percentage of hatch of egg clusters of the gypsy moth in the spring of 1934 was very variable. The severe cold of the winter of 1933-34 killed many egg clusters, but killing cold was not uniform over extended sections of the infested area, as considerable hatching of exposed clusters was noted in a

number of places. Clusters in stone walls or other protected places close to the ground, where they were covered with snow and not exposed to the extreme cold, showed nearly perfect hatch in many localities. The larvae hatching from such protected egg clusters were abundant enough to cause severe defoliation in many places. During the summer there was from partial to complete defoliation in 492,361 acres of woodland, an increase of nearly 100,000 acres over 1933. In Maine, New Hampshire, and Rhode Island the areas of defoliation were considerably more extensive than in 1933. In Massachusetts there were less extensive areas of defoliation in the eastern and southeastern sections but this decrease was offset, to some extent, by more extensive defoliation than had ever been recorded for the territory between the middle of Worcester County and the Connecticut River. In Vermont and Connecticut small areas of defoliation were noted. As the result of the scouting work in northern Vermont in the fall and winter of 1933-34, 15 towns, immediately east of the barrier zone which were found uninfested, were taken out of the regulated area and added to the zone. These towns extend from the Canadian border to, and including, the town of Hancock in Addison County--an area of 604 square miles. (A. F. Burgess, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

BROWN-TAIL MOTH

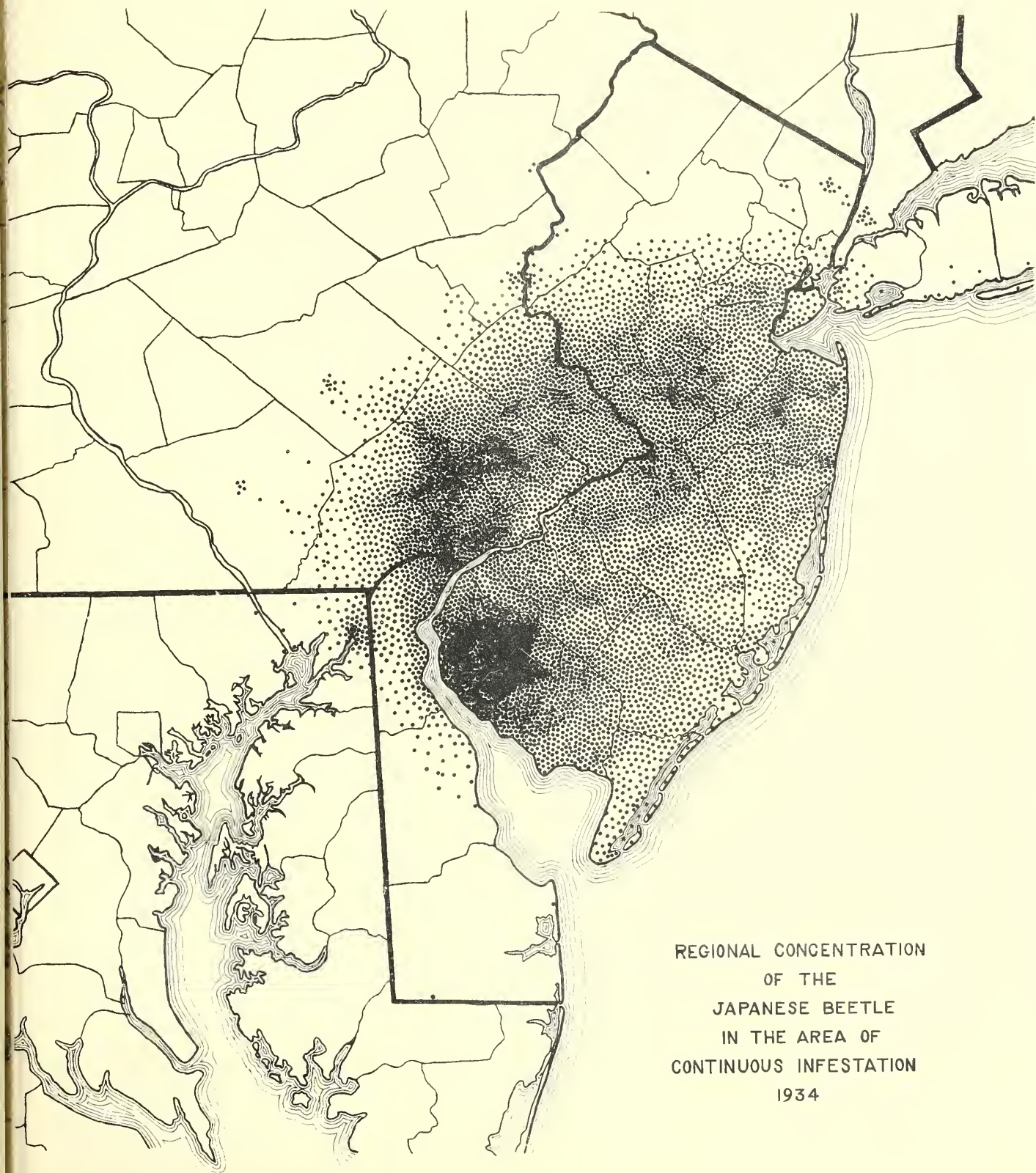
In general, there is only a light infestation of the brown-tail moth over the greater part of the infested territory. No cases of severe defoliation were reported this past summer. This may be due, in part, to the enormous number of winter webs that were cut and burned last winter under Civil Works authorization and, in part, to winter mortality of hibernating larvae caused by the extreme cold. Two new infestations outside the regulated zone were found in Maine, one at Orono and the other at Old Town. (A. F. Burgess, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

SATIN MOTH

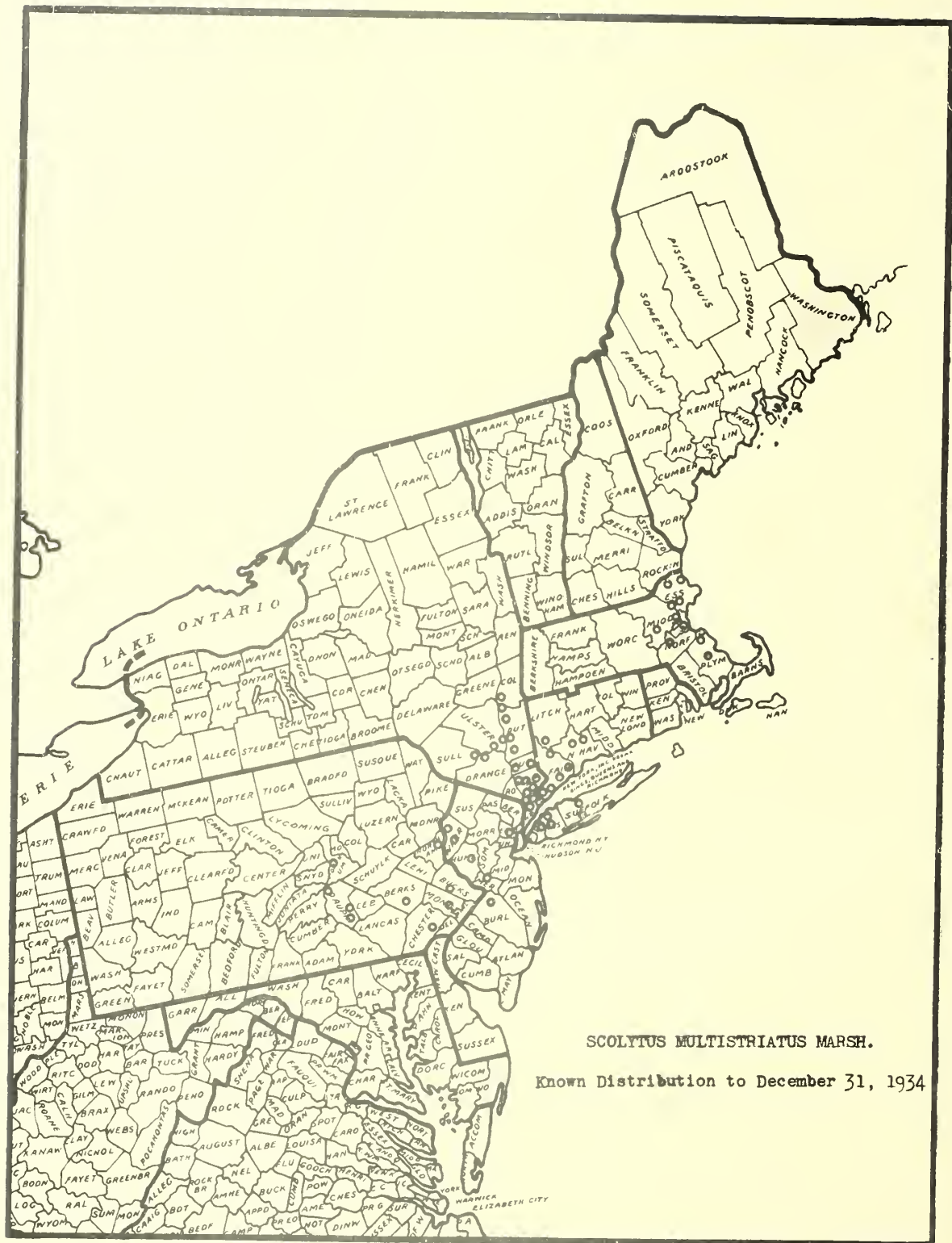
With few exceptions, the infestation of the satin moth appears to be low throughout the infested area. In practically all of the area the infestation was not severe enough to cause any appreciable defoliation, with the exception of one town immediately northeast of Boston and another on the Massachusetts-Rhode Island line. This insect has been known to occur in the State of Washington since 1922, and was found this year in the vicinity of Gervais, Oreg. (A. F. Burgess, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

ELM LEAF BEETLE

The elm leaf beetle was reported to be defoliating elms in Yakima, Wash., during the third week in April. Adults began leaving hibernation quarters in the New England States the first week in May. During the latter part of May it was reported as damaging elms in southwestern Ohio and in July it was reported from the Bluegrass Region of Kentucky. In May reports of damage were received from southwestern Idaho and later in the season the beetle was reported as being present throughout the Boise and Payette Valleys, where



REGIONAL CONCENTRATION
OF THE
JAPANESE BEETLE
IN THE AREA OF
CONTINUOUS INFESTATION
1934



SCOLYTUS MULTISTRIATUS MARSH.

Known Distribution to December 31, 1934

many unsprayed trees had been defoliated. In August it extended its range southward along the western side of the Sacramento Valley to Colusa County, and an isolated infestation was found at Port Costa, Contra Costa County, Calif. The infestation in the New England and Middle Atlantic States was considerably lighter than it has been for the last few years.

A BARK BEETLE

The discovery of great numbers of elm trees affected by the Dutch elm disease in the New York, New Jersey, and Connecticut area and the proof during the past year that Scolytus multistriatus Marsh. is able to transmit the organism causing this disease, make the distribution of this insect a matter of especial importance at this time. During the fall of 1933, J. N. Knull was employed by the Division of Forest Insects of the Bureau of Entomology and Plant Quarantine to make a survey of the distribution of the species. The records of this survey are presented in the accompanying map and the following list of localities.

Connecticut.--Meriden, North Stamford, Noroton, Glenville, Brookfield, New Milford, Naugatuck, and Fairfield.

Massachusetts.--Dover, Boston, Cambridge, Danvers, Wakefield, Halifax, South Hingham, Wayland, Haverhill, and Newburyport.

New Jersey.--East Orange, Princeton, Columbus, Flemington, Delaware, Bridgeville, Oxford, and Mount Pisgah.

New York.--Dobbs Ferry, Armonk, Jamaica, Roslyn, Bay Shore, Bronx Park, Tarrytown, Beechhurst, Peekskill, Rye, Fishkill, Croton-on-Hudson, Poughkeepsie, Staatsburg, Clermont, Red Hook, Katonah, Port Chester, Bedford, Brewster, Cold Spring, Milton, Wallkill, Pine Bush, and Bloomingburg.

Pennsylvania.--Stoverdale, Bainbridge, Chalfont, Center Square, West Chester, Reading, Hershey, Sunbury, and Bangor.

The Division of Forest Insects is very much interested in obtaining all possible records of the occurrence of this beetle and, as other insects may also be able to transmit the Dutch elm disease fungus, this office will welcome notes on all insects attacking elm, especially if accompanied by specimens of the insects for identification. (William Middleton, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

SCREW WORMS

Late in the summer of 1933 screw worms (Cochliomyia americana Cushing and Patton and C. macellaria Fab.) occurred as serious pests of livestock in a number of counties in southern Georgia and northern Florida. In May 1934 infestations began to be reported in this general area, and as the season advanced the injury by the pests spread widely over the Southern States and appeared in isolated areas in the North Central States. At the close of the season the screw worms had appeared as important pests of livestock in 57 counties in Florida and 120 counties in Georgia. In the southern third of South Carolina and throughout the southern half of Alabama, Mississippi, and Louisiana the infestation was also severe. Heavy losses

were experienced in the coastal region of Texas, thus connecting the newly infested area in the Southeast with the normally infested area in Texas. The number of screw worm cases in the western part of Texas and westward through New Mexico, Arizona, and California during 1934 was apparently somewhat below normal for that region. This was due doubtless in a large part to the drought. The appearance of the screw worm as a pest of livestock in northwestern Iowa and southern and central Indiana is noteworthy. The infestation in Iowa centered in Plymouth County and extended into Woodbury and parts of Monona and Cherokee Counties. Veterinarians reported that they treated about 330 cases in Iowa. The screw worm was present in limited numbers in the vicinity of Sioux Falls, S. Dak. Specimens collected from wounds from a number of cases were definitely identified by E. F. Knipling as C. americana. In Indiana definite records of screw worm occurrence were obtained from Lawrence, Hendricks, and Montgomery Counties. Specimens reared from wounds proved that C. americana was involved.

A brief survey of south-central and western Tennessee by O. G. Babcock late in the season indicated that a limited number of cases occurred in that area, and a survey made by E. W. Laate in southern Louisiana showed that the infestation of cattle in seven parishes ranged from 1 to 15 percent. The infestation among horses and mules in the same area was found to have the same percentage range. The infestation among sheep ranged from 1 to 40 percent and among hogs from 3 to 25 percent.

Accurate figures on the number of cases occurring in different types of animals were obtained by D. C. Parman and his associates in 21 counties in southern Mississippi. This survey indicated that 12 percent of all animals in the counties were infested, the percentage by different species of animals being as follows: Cattle 11, sheep 15, goats 6, horses and mules 9, hogs 11, and dogs 14. Somewhat similar percentages of infestation were reported from Georgia by W. E. Dove and from Florida by W. V. King.

It has been found practically impossible to arrive at a reasonably accurate estimate of the death loss of livestock in invaded territories. Reports obtained from a considerable number of county agents in Georgia indicated the death loss in 86 counties of that State to be over 50,000 head. (F. C. Bishopp, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

BUFFALO GNATS

A heavy infestation of Buffalo gnats (Simulium spp.) occurred in the Ohio River bottoms of Kentucky and in east-central Arkansas during the last week in April. In Arkansas 100 head of mules were killed in one county alone and the total number of deaths in the State was estimated at 500 head.

NEW AND LITTLE-KNOWN PESTS

The coreid Phthia picta Drury was reported as very destructive to tomato near Eagle Pass, Maverick County, Tex., during the fall. A similar occurrence in the fall of 1892, at Bexar, Bexar County, Tex., was recorded by Riley and Howard (Insect Life, April 1893: 282). Van Duzee, in his Catalogue of the Hemiptera of America North of Mexico, lists the insect from California. E. A. Schwarz (Proc. Ent. Soc. Wash., I: 224) records finding the insect attacking tomato near Biscayne Bay and Lake Worth, Fla. It is very common in the West Indies, where it injures solanaceous plants and sometimes attacks cotton.

The leafhopper Cicadula maidis De Long and Wolcott was described in 1923 from a specimen collected on corn in Puerto Rico. It also occurs in Cuba. Its first appearance in the United States was in San Bernardino County, Calif., in 1933, and it was found on corn in Los Angeles County in 1934. A survey was conducted that year in California and the leafhopper was found to be present in Santa Barbara, Kern, San Bernardino, Ventura, Los Angeles, Orange, Riverside, and San Diego Counties.

A cryptorhynchid weevil was discovered attacking peppers (Capsicum sp.) in Dade County, Fla., in November 1931, and was reported again in November 1933, when it was determined as Collabismodes cubae Boh. This constitutes the first record of this weevil in the United States. It is recorded as occasionally attacking peppers in Cuba.

A bostrichid, Stephanopachys pacificus Csy., was discovered eating holes in apples in Chelan County, Wash., in September. This is the first time this insect has been observed damaging fruit.

Periclista hicoriae Rohw. was described from specimens collected from Hicoria glabra at Charteroak, Huntingdon County, Pa., in May 1914. In April 1931 the sawfly was discovered attacking pecan along the coast of Mississippi. In 1934 it was reported as occurring there in great abundance over a considerable territory.

A pyralid, Pachyzancla periusalis Walk., was reported as attacking tomato in greenhouses, and tomato and eggplant in fields near Experiment, Ga. This insect has been recorded in literature as occurring on various species of solanaceous plants in the Gulf States from Florida to Louisiana.

The Asiatic scale insect Odonaspis penicillata Green, known as a pest of bamboo in China, Ceylon, and India, has been reported on a few occasions in Louisiana. During 1934 this pest was recorded as attacking bamboo in Mississippi.

Parlatoria oleae Colv. was discovered in November 1934 attacking olives near Fresno, Calif. This scale was discovered at Baltimore, Md., in 1927, attacking California privet, and was reported again this year at College Park, Md. During 1932 it was found at Tucson, Ariz., where it is now well established, and attacks a wide variety of plants, including olive, almond, palms, and citrus.

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